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Telephony

The Journal of the Telephone Industry

CONVENTION REPORT ISSUE

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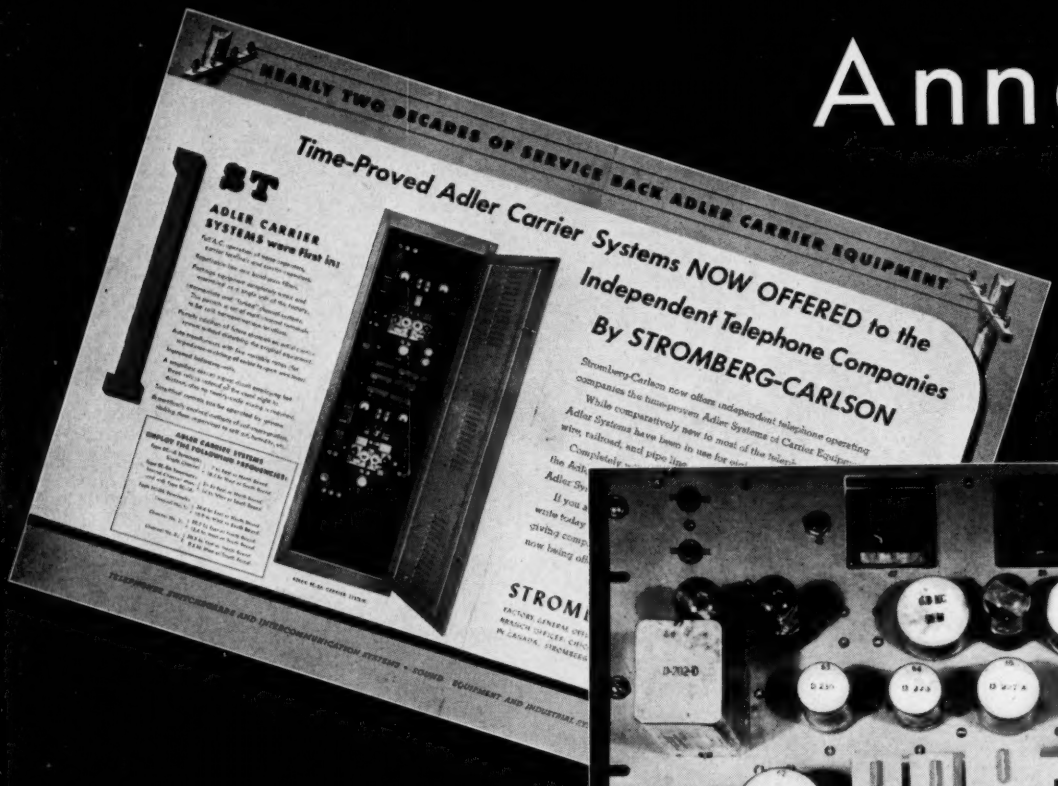
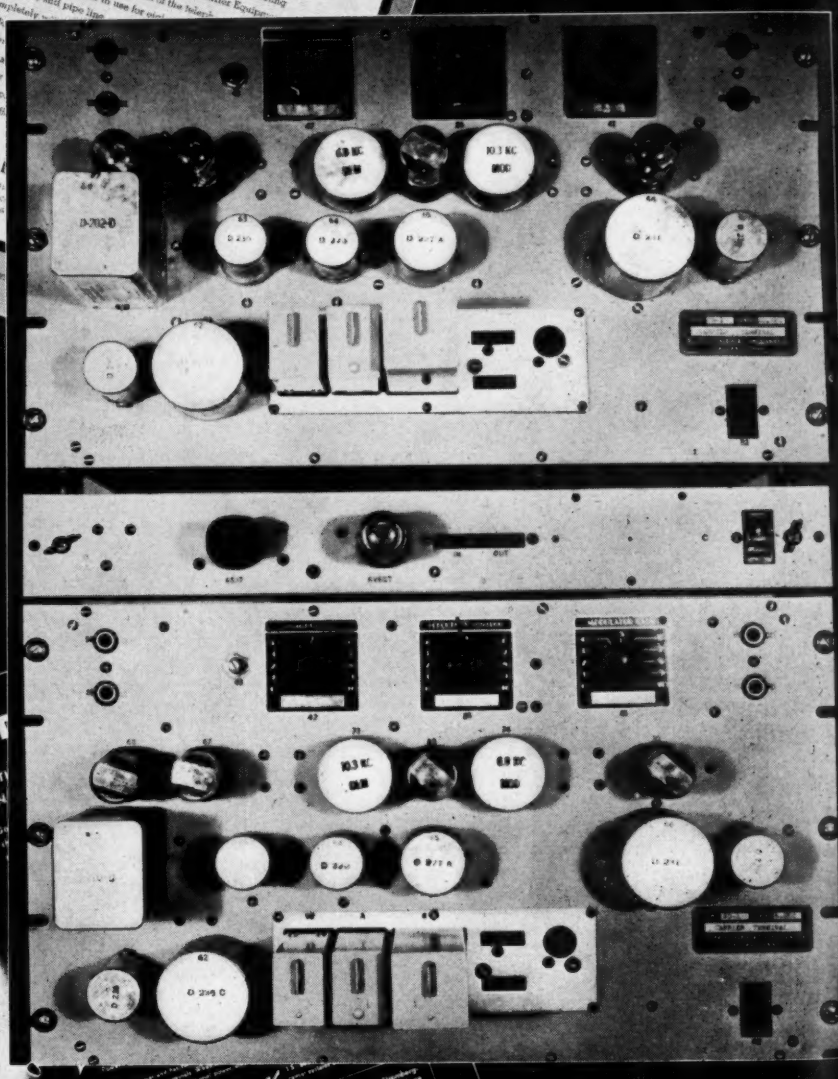
Announcing


NEARLY TWO DECADES OF SERVICE BACK ADLER CARRIER EQUIPMENT
Time-Proved Adler Carrier Systems NOW OFFERED to the Independent Telephone Companies
By STROMBERG-CARLSON
ADLER CARRIER SYSTEMS were First in!

First announcement:
Stromberg-Carlson distributes Adler carrier systems; August 1946.



Front View: Two type SD Terminals and one SD extension unit.

First announcement:
Adler offers a short-haul carrier
October 1947.

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FLASHES AND PLUGS

SUPPLIER TO THE CROWN. A Dutch police officer recently telephoned Queen Juliana of the Netherlands. After some difficulty, he was put in touch with the young ruler, to report:

"I'm sorry to have to tell Your Majesty that your two daughters have been brought to the police station. On coming out of public school, they were playing in the street with some of the little girls and they stole some grapes from a fruit stand."

"What punishment is customary?" Queen Juliana asked.

"Children caught stealing must be held at the police station for two hours, then returned to their parents."

"Well," said the Queen, "keep all the little girls for two hours, but hold mine there one hour longer."

A royal equerry was then sent to find and repay the fruit vendor. The vendor refused all payment, but asked to be qualified as a "supplier to the crown!"

• • •

RIGHT AT THE DOOR. With one exception, newspaper editors of Sydney, Australia are enthusiastic over their new radiotelephone systems.

The exception is the one executive who recently tried vainly for hours to contact his cruising police reporter. Then the reporter's voice boomed suddenly into the office.

"I'm getting you clearly now," said the relieved executive. "You ought to," the reporter replied. "I'm at the front door."

• • •

DIRT CHEAP. Pole holes are virtually dirt cheap down around Decatur, Ill. About two cents a hole, to be sure.

This little figure was reached by a Macon County court jury in a condemnation suit brought by the Illinois Power Co.

The case got into court when some landowners objected to having the power lines on their property.

A posthole was figured to take up about 1/20,000 of an acre. So the jury decided that Farmer Oscar French was entitled to eight cents for the equivalent of four holes on his property. His land was valued at $400 an acre.

Farmer John F. Streich, whose land was valued at $350 an acre, was awarded 16 cents for 10 pole holes.

• • •

"SORRY, WRONG IDEA." In one city where the film "Sorry, Wrong Number" opened, Hollywood publicity men tied it in with a telephone quiz game with valuable prizes. The idea was that if your telephone rang and you said "Sorry, Wrong Number" right off, you received a prize.

Result: The confusion almost paralyzed the city's telephone system.

• • •

NO MORE CLOSE SHAVES. The Slattery Contracting Co. of New York, which is excavating next door to barber Anthony Danton, has agreed to have someone telephone him before every jarring dynamite blast. Danton had complained that the dynamiting was making his work dangerous for persons he shaved.

Telephony

THE JOURNAL OF THE TELEPHONE INDUSTRY

October 23, 1948

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INDUSTRY'S PROBLEMS AIRED

At Annual USITA *Meeting*

By R. C. RENO

THE 1,800 Independent telephone men and women who attended the 51st annual convention of the United States Independent Telephone Association, on Oct. 11, 12 and 13, should realize a good return on the time and money they invested in making the trip to Chicago, as they should have gone back home with an ample store of information which they can apply in overcoming the many problems which confront their companies in meeting the public demand for improved and expanded telephone service.

Addresses and discussions at the three-day convention touched upon all phases of the telephone operating business and most of them were of a practical nature, which, of course, attracted the interest of delegates of both the large and small companies. The fact that all sessions were unusually well-attended was evidence that the program had an over-all appeal.

Two highlights of the convention were the addresses of two leading state regulatory officials who discussed what, perhaps, is the No. 1 concern of the telephone industry—the growing need for regulatory commissions to realize the financial and service problems of practically all telephone companies and to look at these problems from a flexible and practical standpoint in light of the ever-changing economic conditions.

These regulatory officials—Chairman Harry M. Miller of the Ohio Public Utility Commission and Commissioner H. Lester Hooker of the Virginia State Corporation Commission — emphasized the commissions' responsibility to the public and to the telephone industry in seeing that telephone companies are maintained in a strong financial and operating condition. To accomplish this, they suggested that commissions should consider the need for increased rates and reasonable earnings by most telephone companies in these days of high operating costs in order to place them in a position to attract sufficient equity capital to provide adequate plant facilities to improve and expand telephone service.

With so many commissions failing to recognize these needs of telephone companies, the forthright, practical and sympathetic approach to the matter by Commissioners Miller and Hooker provided a "shot in the arm" for the Independents attending the convention.

The convention elected the following directors: F. S. Barnes, Rock Hill, S. C.; A. O. Black, Butler, Pa.; J. P. Boylan, Rochester, N. Y.; Oscar Burton, Tyler, Tex.; C. S. Cadwell, Chicago, Ill.; V. E. Chaney, Chicago; W. B. Clay, Hutchinson, Minn.; Walter Dakin, Madison, Wis.; H. M. Engh, Erie, Pa.; W. C. Henry, Bellevue, Ohio; F. B. McHenry, Jefferson City, Mo., and L. F. Shepherd, Lafayette, Ind. At the board of directors meeting following the convention B. I. Noble, Lincoln, Neb., was elected a director to fill the unexpired term of J. H. Agee, Lincoln, who resigned from the board following his retirement from the telephone business.

The directors elected the following officers: President, Mr. Barnes; first vice president, H. V. Bozell, New York City; second vice president, Ray Dalton, Everett, Wash.; executive vice president, Clyde S. Bailey, Washington, D. C.; treasurer, C. D. Brorein, Tampa, Fla.; secretary and assistant treasurer, George C. Richert, Washington, D. C., and assistant secretary, Mrs. Leola Fitzwater, Washington, D. C. Mr. Richert will continue to carry on his duties as the association's engineer.

The executive committee is composed of Mr. Barnes, Mr. Burton, Mr. Cadwell, Mr. Engh; H. E. Hageman, Lorain, Ohio; A. L. Hart, Kansas City, Mo.; Mr. Henry; L. W. Hill, Tarboro, N. C.; C. D. Manning, Chicago, Ill.; R. A. Phillips, Lincoln, Neb., and R. E. Shotts, Chicago, Ill.

J. H. Agee, who recently retired as vice president and general manager of the Lincoln (Neb.) Telephone & Telegraph Co., and who has served the USITA as a director for 22 years, as president in 1937-38, and as a member or chairman of various important association committees, was presented with an engraved copy of a resolution adopted by the convention expressing appreciation of his long and loyal service to the Independent industry and to the national association, upon his retirement from the association's board of directors.

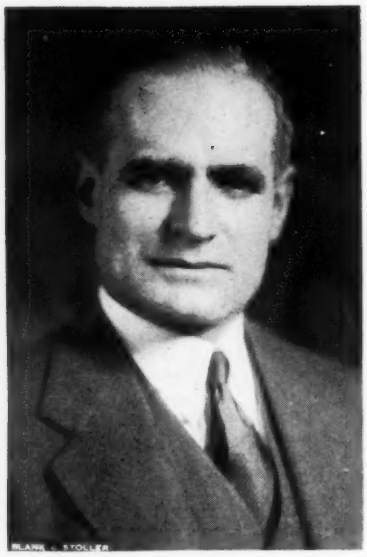
The convention also adopted a resolution commemorating the recent death

THANKS MR. BLAIN

We are again indebted to RAY BLAIN, TELEPHONY's technical editor and official convention photographer, for taking the photographs which make up the pictorial record of the USITA convention presented in this issue.

As usual, Mr. Blain accomplished an outstanding job in a short time and under difficult circumstances. In order to "speed up" this issue, Mr. Blain equipped the bathroom of his hotel room as a dark room and developed his pictures "on the spot."

F. S. BARNES
President



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RAY DALTON
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Executive Vice President

CARL D. BROREIN
Treasurer

GEORGE C. RICHERT
Secretary

of Floyd D. Ridings, who had served the association as secretary and assistant treasurer for several years.

As in past years, the displays of new equipment and new methods by the manufacturers and suppliers formed a vital part of this year's USITA convention. The exhibits took up the entire fifth floor of the Stevens Hotel and the throngs which visited the manufacturers' rooms bore evidence that no convention would be as complete and successful if the manufacturers were not there to give operating men information concerning the latest and most up-to-date apparatus. With the adoption of new developments by the operating industry, such as radio telephony, carrier, nationwide toll dialing, automatic toll ticketing, etc., the industry must and does depend more and more upon the manufacturers for advice and help and they are always prepared to give it at the national convention.

The USITA board of directors, which held two meetings during the convention, took action on several items of interest to the industry.

It was voted to hold the 1949 Spring Executives Conference on April 11 and 12 at the Edgewater Beach Hotel, Chicago. In connection with this meeting the directors recommended that it follow the lines originally conceived for such gatherings years ago—that is, as a conference rather than an open convention. With this in mind the directors voted that effort be made to confine the attendance at future spring meetings to representatives of members of the association.

The board also authorized the appointment of a special committee to survey the field to select a man with a broad accounting experience to assume the position of secretary of the association on a permanent basis.

As a result of inquiries concerning the presentation of USITA honorary membership certificates to men and women who have had 50 years of service in the Independent industry, presentation of which were made to 37 individuals at last year's golden anniversary convention, the directors voted that the giving out of such certificates be handled as an administrative matter by the officers of the association. It was pointed out, however, that only service in the Independent industry should be recognized in computing the 50 years of service.

In addition to the addresses presented in full on succeeding pages there were three which were of great interest to the convention.

C. H. Rich, of the Illinois Bell Tele-

Three groups of representatives of Independent telephone companies photographed at the registration desks at the USITA convention.

phone Co., gave a demonstration, by motion picture slides and vehicle apparatus, of mobile radio-telephone service. At the conclusion of the demonstration, Mr. Rich carried on a conversation with Mrs. Mayme Workman, executive secretary of the Independent Telephone Pioneer Association and traffic editor of TELEPHONY, who was a passenger in an automobile cruising around Chicago. The conversation was broadcast to the convention by loudspeakers.

"The Transistor—A New Semi-Conductor Amplifier" was the subject of an address before the plant conference by Dr. J. A. Becker, Bell Telephone Laboratories, New York City. The development of the transistor has just recently been announced by the laboratories.

The electrical properties of metals and insulators have been known for a long time. In the last decade the electrical properties of semi-conductors have been investigated intensively. These semi-conductors are solid materials whose electrical conductivities lie between those of metals and those of insulators. Concomitant with these investigations, important applications of semi-conductors have been developed. These include copper oxide, selenium, silicon and germanium: rectifiers, modulators, voltage limiters, expanders and compressors, thermistors or thermally sensitive resistors which are used as temperature controls, time delay devices, automatic gain regulators, oscillators and two-electrode amplifiers, Dr. Becker stated.

The most recent development stemming from the research on semi-conductors is the transistor, which consists of a small piece of semi-conductor with three electrodes. This device amplifies input signals in somewhat the same way as does a vacuum tube; power gains of a factor of 100, or of 20 decibels are readily attained; frequencies up to 10 megacycles per second can be amplified, and output of 20 milliwatts or more are realized.

Experimental models of the transistor are only one-quarter of an inch in diameter and one-half of an inch in length. They do not have any hot cathode and require no heat-up time. Transistors can also be used as oscillators, Dr. Becker explained.

Dr. Kenneth McFarland, superintendent of schools at Topeka, Kan., and personnel consultant of General Motors and other industrial firms, addressed the convention on "The 'U' in Business." In the course of his address, Dr. McFarland made the following observations:

"One of the most astounding facts revealed by the research of personnel departments is that more than 90 per cent of failures in business, the professions, and the vocations are not occasioned by a lack of knowledge concerning the skill techiques involved. The vast majority of so-called 'business failures' are in reality human failures and personality faults. The record shows that people are fired because they are lazy, irresponsible, disloyal, dishonest, have poor general judgment, are immoral or intemperate, use poor English, have poor personalities, or are chronic complainers. It seems that before a man can be a good business man, good professional man, or a good tradesman, he must first be just a good man.

"The person who succeeds in the rapidly changing and difficult business conditions ahead must be a big personality. These people are characterized by several distinguishing traits. First and foremost they are gracious. The big man never tries to impress his em-

IN THE NATION'S CAPITAL ON PAGE 93

The weekly feature, "In the Nation's Capital," by Francis X. Welch, appears on page 93 of this issue. All of those interested in the management, commercial and accounting phases of the telephone business, as well as members of regulatory commissions, will want to read and study Mr. Welch's article concerning the urgent need for a higher rate of return on invested capital for utilities, so they can attract necessary equity capital to expand their facilities. It is "must" reading.

NEW USITA DIRECTORS

Re-elected

F. S. BARNES, Rock Hill, S. C.
A. O. BLACK, Butler, Pa.
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OSCAR BURTON, Tyler, Tex.
C. S. CADWELL, Chicago, Ill.
V. E. CHANEY, Chicago, Ill.
W. B. CLAY, Hutchinson, Minn.
WALTER DAKIN, Madison, Wis.
H. M. ENGH, Erie, Pa.
W. C. HENRY, Bellevue, Ohio
F. B. McHENRY, Jefferson City, Mo.
L. F. SHEPHERD, Lafayette, Ind.

Elected

B. I. NOBLE, Lincoln, Neb., to succeed J. H. Agee, Lincoln, resigned.

NEW USITA OFFICERS

President
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Executive Vice President
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First Vice President
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*H. E. HAGEMAN, Lorain, Ohio
*W. C. HENRY, Bellevue, Ohio
A. L. HART, Abilene, Kan.
L. W. HILL, Tarboro, N. C.
*C. D. MANNING, Chicago, Ill.
*R. A. PHILLIPS, Lincoln, Neb.
R. E. SHOTTS, Chicago, Ill.
*New Members

ployes with the fact that he is the boss. John Temple said, 'Don't strut. The fact that you now have a certain title or position doesn't prove anything except that maybe in selecting you somebody made a mistake that will be rectified later.'

"Big men are not defeated by the yappings of little men. When you climb out of a rut you must expect bumps. But it is how the bumps affect you that determines your caliber. Little men are flattened by them and never get up again. Big men are molded, shaped, and tempered by them until they become those great, rugged giants that stand out separate and apart on the mountainside.

"Finally, big people like time to be human. They put first things first, and *people are always first.* The old Golden Rule philosophy is still the best basis for a successful business career."

The first day of the convention was given over to the plant, traffic, commercial and accounting conferences, which were presided over by G. W. Miller, Rochester, N. Y.; C. C. Donley, Lincoln, Neb.; R. B. Still, Bloomington, Ill., and H. C. White, Jamestown, N. Y., respectively. The addresses presented at these conferences, as well as the speeches made at other sessions, with the exceptions noted above, are presented on the following pages for the benefit of those who were unable to attend the USITA convention.

"MR. WATSON, COME HERE . . ."

This year's best service improvement story is that of the New York gentleman who is an employe of the Western Electric Co.

Snow cascaded from his roof and, while he shed a silent tear for his long-awaited telephone service, neatly amputated the newly-installed drop wire.

At that moment, ladder in hand, a repairman strolled up to fix it.

Even when the repairman explained he was driving past and saw the accident occur, it gave the Western man an awful shock.

Shows how far the industry has come from that early day when Alexander Graham Bell had to use his telephone to get a repairman from the next room.—Bell Telephone News.

"Safety is hard to advertise," says the New York Times. "Most people think they have it, like common sense. Many hazards become contemptible because they are as familiar as the loose wire in the kitchen. . . . Who sees the build-up of static electricity in the dress you clean with gasoline? Even the shock of a big hotel fire wears off and false security exerts its age-old drug."

That is why fire prevention work must never slow down—and why every medium of communication must constantly be employed to keep the menace of fire before the American people. Today fire is costing us some $700,000,000 a year in direct waste alone—and the indirect waste is two to three times as great. Worse still, it is taking more than 10,000 lives. And fire is the cause of about one-fourth of all accidental deaths to children.

According to the best authorities, about 90 per cent of all fires are preventable. They are the product of human carelessness, ignorance or forgetfulness. That goes for the rundown heating plant which sets a home afire—or for the cigarette butt thrown from a car which leads to the ravage of millions of acres of fine timber and the destruction of wild life. The fire which cannot be prevented is rare indeed.

The war against fire is being fought for you—and for everyone else.—**Industrial News Review.**

RESPONSIBILITY OF MANAGEMENT

By OSCAR BURTON
USITA President

I SINCERELY trust that thus far this 51st annual convention of our association has been the most enlightening, the most informative and the most interesting you have ever attended. I know from comments made by many of you that our annual meetings have become increasingly important each year; that our members look forward to these sessions which provide the opportunity to discuss our common problems, compare notes, take stock of where we have been, where we are, and where we are going. And, we must not become cynical about it and conclude that a convention is a gathering of important people who singly can do nothing, but collectively decide that nothing can be done.

In an address delivered recently by Austin P. Igleheart, president, General Foods Corp., on the subject, "A Challenge to American Management," he said in part:

"There was a time—say about 1928—when a business gathering of this sort would have followed a certain predictable pattern. We would have discussed business problems in business terms. We would have said something rather flattering about American industry and, inferentially, about ourselves. Then we would have gone home in a glow of self-confidence.

"The intervening 20 years have certainly changed the pattern. Tonight, I am asked to talk about 'A Challenge to American Management.' And to this many a man might stoutly say:

"'What challenge? Haven't we met the challenges? Haven't we built the industrial machine that won a war with so much to spare that today it is the hope of the world?

"'Haven't we attained the highest living standards in history? Don't Americans—7 per cent of the world's population—own 70 per cent of the world's automobiles, 34 per cent of the railroads, 50 per cent of the telephones, etc. Does anyone excel us in production, transportation, engineering, distribution, finance, and all the other specialties of management?'

"Yes, we are tops, technologically. We have given tremendous demonstrations of economic strength. And yet, when we discuss the very virtues of our system, we feel we have to defend it.

"Why? The fact is we are on the defensive. The fact is, we are operating in an atmosphere that is partially hostile and largely indifferent to our own aims and views. Consider the public opinion polls. Perhaps they aren't perfect 'cat's whiskers.' They can err in judging elections when a small percentage may tell the tale. But they can evaluate *clean-cut* trends with satisfactory accuracy. And this is what the Opinion Research Corp. tells us:

"Twenty-four per cent of the American people as a whole lean definitely toward some drastic, fundamental change in our social, political and economic system. This does not necessarily mean *red communism* as such. But it *includes* communism and a number of other tendencies which would have the same final effect on economic enterprise and political freedom."

Mr. Igleheart goes on to say, as indicated by public opinion polls:

"Thirty-five million want change. Now that, or anything like it, is an uncomfortably large number of people—some 35 million, in fact—to have on

OSCAR BURTON

the wrong side of the ideological fence. Moreover, *an even higher percentage* of manual workers leans leftward than does the general public. The Psychological Corp. put this question to industrial employees: 'If *all* the manufacturing companies were run entirely by the government, would you get more for your money than under the present system?' Forty-three per cent said either 'more' or 'as much'."

The above facts stated by Mr. Igleheart, together with other equally pertinent facts developed by him, constitute the challenge about which he was speaking.

When we look at the accomplishments of the past, review *our* present standing and ask *ourselves* what about the future, the need for group leadership, such as is provided by our state and national telephone associations, is apparent. Whether the confidence in the future of the Independent segment of the telephone industry by those stalwart pioneers who organized the association 51 years ago is exceeded by those of us engaged in the business today is debatable, but none can gainsay their courage in the beginning nor their fortitude in facing the hard years ahead.

This amazing age, with its many cross-currents and clash of political ideologies at home and abroad, likely at any moment to change the career of an individual or an industry, calls for leadership of the highest order. During these chilly days of a cold war, inflation and general upset, we are bound to be affected by what is happening all over the world. It is no time, however, to conclude that everything is about to go to smash and that mankind is set to take the final "toboggan ride" to ruin. Rather than take such a gloomy outlook, it behooves management to take a close look at its responsibilities and make constructive and objective plans to meet those responsibilities.

In selecting the subject, "The Responsibility of Management," I elected to break it down into three parts; namely, (1) to the public, (2) to the employes and (3) to the stockholders. I realized that it is not a new subject. I also realized that it is not an old one because, like the "Sermon on the Mount" or the "Golden Rule," it will never grow old. The most anyone can say, however, with what has already been said on the subject many, many times, serves only to emphasize its importance.

Our Responsibility to the Public. I have placed our responsibility to the public first because without the public—our patrons—there would be no telephone industry. Our responsibility, therefore, is to see to it that our service shall at all times be adequate, dependable and satisfactory to the users. The management of the telephone company, operated generally by public consent without ordinary competition, is, therefore, in the position of a trusteeship obligated to provide adequate service in the best interests of convenience and necessity. Management has demonstrated its alertness in improving plant techniques. Today's service demands can only be met by an increased awareness of the need for the development of more efficient plant methods and practices that will permit the job to be done more expeditiously.

Proper development of all the vari-

ous classes of service—exchange and toll—business and residence, is necessary in order to provide service that will adequately meet all requirements. More effective means must be found for utilization of available facilities to meet service requirements. By the use of radio, telephone systems can be extended to serve remote and otherwise inaccessible areas, and can be made sufficiently flexible to serve mobile telephones.

Second in importance to meeting our responsibilities to the public is the providing of courteous and efficient service. Commercial methods, practices and procedures designed for the efficient handling of subscriber contacts must be utilized in the interest of increased efficiency. There is greater need now than ever before for commercial employes to meet promptly, effectively, courteously and willingly their every commitment to our subscribers. It is more important that they refrain from making promises they have reason to believe cannot be fulfilled. Time and effort must be devoted to impressing upon *every* employe the increasing need for the exercise of tact and diplomacy in their customer contacts, to the end that we shall have constantly improving customer relations.

The remarkable strides our traffic people have made, and are making, in improving speed of service and percentage of call completions indicate the ingenuity of which they are capable. Today's service demands can only be met by the development of that skill and resourcefulness to the fullest possible extent. More efficient performance is required to provide the quality of service which the public expects and for which it has demonstrated a willingness to pay.

Major development of the service, and consequently its greatest value to customers, can only be attained by rate schedules which give proper weight to relative values of service required by different groups of customers at charges well within the ability of the maximum number served to pay for it.

All of us realize that to fulfill our obligations to the public, higher rates must be obtained in order to meet the higher level of costs upon which our business, like all other businesses, must be conducted. Some of us have found that postwar increases in rates are already insufficient to enable us to meet our fixed charges and provide for essential improvements and expansions to our plants. As we meet here today discussing our problems, we do not know, nor can we predict, just what the elevation of our cost of doing business may reach. Happily, there is evidence of appreciation on the part of the public and of public officials who control the rates we charge that the cost of producing satisfactory telephone service has gone up faster than the rates charged for it.

Here I should like to quote from the annual address of President Walter Dakin to the Wisconsin State Telephone Association on May 19, 1948:

"The future welfare of our companies may depend on the action taken now to increase the proportion of our gross revenues that come from local services. I suggest that each of you critically analyze the proportion of your gross revenues that come from local services, toll and miscellaneous items. If you find that toll income is a sizable proportion of your total revenues, perhaps you should give more serious thought to what your financial position would be if the business cycle should take one of its historic turns downward."

Our industry goes along not expecting speculative profits, endeavoring to give its stockholders regular and moderate dividends, the balance, if any, to be "plowed back" into improvements of facilities. Thus, in our business any profits beyond those consistent with financial safety and a high grade of service go to the users and not to the owners. Earning less than safe returns will endanger the service, both present and future, and will not permit us to meet our threefold obligation: to the public, to the employes and to the stockholder.

Our Responsibility to the Employes. In reviewing our second management problem—our responsibility to our employes—we again find that it is based on the ability of our industry to obtain sufficient rates for its service to enable it to provide the ingredients that we are obligated to give to the men and women who work with us. These ingredients are: Reasonable pay, steady employment, good working conditions, a chance to get ahead, to be treated with respect and other reasons for really liking their jobs.

The telephone industry offers its employes a degree of job stability and security that excels that of most industries. This has been accomplished as a result of the development of employment policies and practices designed to foster opportunity for excellence in performance and a reward for job accomplishments. Our industry can take justifiable pride in the fact that it has been alert to its responsibility to provide its employes with working conditions that are conducive to good employe morale so essentially necessary to the rendition of a continually improving quality of service. The continued proper discharge of this responsibility involves frequent examination of work schedules, with a view of obtaining the highest degree of employe satisfaction consistent with sound operation of the business.

One of our biggest management jobs today, and for the future, is to keep our employes working as an effective team to serve the public to an even greater degree of efficiency than it has in the past. Supervisory methods should be continually examined in order to fully develop the potentialties of our employes who are prime factors in the quality of the service we render.

Employe satisfaction with the wage levels maintained by the Independent telephone industry can probably be best

Left to right: WILL V. PARKER, North Electric Mfg. Co.; MR. & MRS. L. J. OLLIG, Waverly, Minn., and H. C. RYON, North Electric.

gauged by the success that has attended the industry's efforts to attract and hold competent people. The foresight which management has displayed in the judgment it has exercised with respect to wage policies is demonstrated by the fact that the industry is not lacking for experienced and qualified personnel to fill supervisory and managerial positions as those opportunities for advancement are presented.

In their contacts with management on wage matters our employes should be impressed with the fact that our earnings are regulated; that such regulations affect, to a considerable degree, the wages of all labor employed at all levels in the business. Management is, of necessity, compelled to afford fair and equitable treatment to all the factors which contribute to the success of the business, the customers, the employes and the stockholders. Because ours is a regulated business, the level of wages it is able to pay definitely lags behind not only the upward but also the downward movement in the cost of living cycle.

Here I am taking the liberty of quoting our own Rupert E. Shotts in the August, 1948 issue of *Telephone Topics*, the official publication of The Gary Group Operating Telephone Companies, in an impressive statement entitled "What About Our Earnings?"

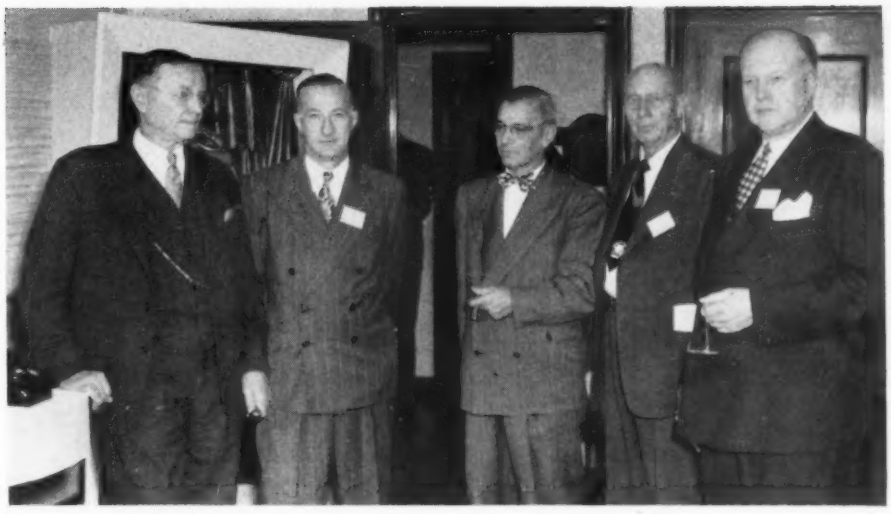
"Revenues in the telephone business come from our customers in payment for service rendered. We have seen that these revenues are expended in four principal ways: For purchase of equipment, materials and supplies; for wages and salaries of employes; for payment of taxes, and for payment of a reasonable profit to our owners. The amounts paid to our company by our customers are determined by a schedule of rates. These rates, in turn, are determined by forces largely beyond our control, and therefore cannot be changed frequently, sometimes not at all.

"In our business we are often caught in a squeeze between the amount of money we really need and the amount of money our controlled rate schedules will give to us.

"We must remember that all of us are in the same boat. Wage increases are sometimes not possible and at the same time reasonable returns to the owners are not possible. Nor can we maintain our property at the required level of efficiency.

"This situation emphasizes again our interdependence on one another in the telephone business."

Wages are, of course, of prime importance to our employes, as also to management, and there is much room in every industry for the education of employes on wage problems. But there are other considerations. We should concentrate on giving our employes a kind of job that they, their families and neighbors will rightly judge as fair, attractive and satisfactory. Tests of attitude of telephone employes indicate that, on the whole, they believe they have the best jobs in the community and that their pay and working conditions are in accordance with the best in their locality.



Left to right: J. W. WOPAT, Fort Wayne, Ind.; R. G. FAULHABER, Leich Sales Corp.; FRED PYLE, Newton, Iowa; C. A. SWEET and R. W. SIEMUND, both of Leich Sales Corp.

Discontent creeps into a worker's mind when he reads or hears of the so-called high level of corporation profits, the high cost of living and the high level of wages demanded by workers in unregulated industries. It is our job to educate our employes of our ability to pay. In our present situation both management and workers have had eight years of a seller's market—a cost plus market. After two or more rounds of wage demands in other industries, with increases less than were demanded, we have seen the fallacy of this "dog-chasing-its-tail" brand of economic expedient.

Most people now realize that all is not well with the old "something for nothing" philosophy—this business of owing it to ourselves and paying it to ourselves—if you get what I mean! They sense that "again and again and again" they have not had the right answers and they are confused, disillusioned and unhappy. The great majority of workers, for the first time in years, are open-minded to some good old-fashioned arithmetic and "horse sense." They are ready for something that calls for character, honor and common effort—even some self-denial. It is time we take our employes more and more into our confidence—not to build up a story that will pave the way for merit increase wage denials, but to encourage both management and labor to work together to get costs down to where the public, the worker

Left to right: J. G. BECKLEY and R. M. SCHOFIELD, both of Kellogg Switchboard & Supply Co.; H. W. HIMMELBERGER and H. C. MILLER, Myerstown, Pa.; T. R. SCHWEER and E. J. ZAPALAK, both of Kellogg; H. F. BOSSERT, Washington, D. C.; H. F. TIMMINS, Kellogg, and EDWIN FREY, HALLERTOWN, Pa.

and the stockholder are all equally satisfied with management's handling of the business.

I have been given permission to quote excerpts from an editorial by David Lawrence appearing in the June 11, 1948 issue of *United States News*, entitled, "A True Partnership:"

"The only sound principle for a system of risk capitalism is one in which workers, management and owners share the risks in proportion to the contributions made. No partnership in which one partner gets gains but assumes none of the losses is worthy of the name either in law or in fact.

"If risk capitalism is to survive . . . there must be a fair division of earnings . . .

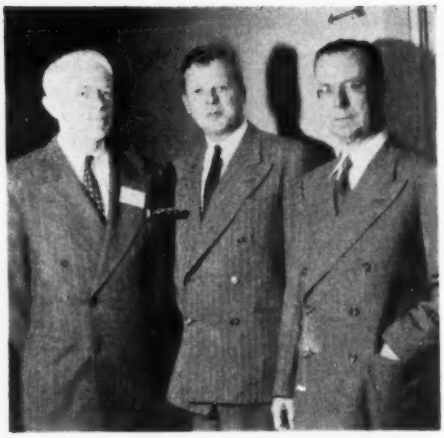
"We can save risk capitalism provided we understand that all groups must be partners in those risks.

"When all the powerful groups that make up our economic life begin to be guided by sound principles of economics in production and division of profits, they will find that mutual interest brings social responsibility. Government regulation can be held within minimum limits by a workable system of self-regulation. This requires self-restraint and statesmanship. This can make the American way even more successful and assure our country a continuance of economic leadership among the nations of the world."

Our Responsibility to the Stockholders. Now let's take a look at our responsibility to those who hire out their funds to the industry and provide the life-blood for its continued existence. Thus far we have met this responsibility by providing a reasonable return to stockholders. To the extent that our responsibility to the stockholders has been met, present and prospective investors can be expected to provide additional risk capital which the industry must have to meet the requirements for plant additions and extensions.

Since you assembled here, to a large extent, represent management, I hardly need to tell you the importance of risk. If there were no risks, there would be few businesses, for risk, in a very real sense, is largely responsible for the material progress we as a nation, and as an industry, have made. If every business were safe and its profits assured, no special incentive would have to be offered for its development. It is the element of risk that creates the incentive of profit and it is the incentive of profit that attracts the developers. Without the incentive of profits there would have been no urge to shift from making buggies to making automobiles.

Today we still have risks, more than we have ever had, and the problem of maintaining an adequate flow of venture capital is of concern to all business. But it is of even greater concern to small business such as ours which, according to a no less authority than the *Wall Street Journal*, is "the biggest little business in the United States."



Left to right: H. R. McNAUGHTON, Indiana Steel & Wire Co.; EMMETT SWANSON, Ft. Wayne, Ind., and H. E. CLAPHAM, Automatic Electric Co.

Capital is an inseparable part of our business. We cannot have a business without people being willing to work for it, nor can we have a business unless somebody is willing to take the risk of putting up the money necessary to establish and maintain it.

In the Independent telephone business at the end of 1946, for example, there was an investment of capital somewhere between $13,000 and $15,000 for every employe. Because of increased costs of labor and materials since 1946, there will likely be required, before long, an investment of capital of around $20,000 per employe—perhaps more. Without that capital, as well as without the employes, there would be no Independent telephone business to employ anybody.

In one way the employe has a considerable advantage over the investor of capital. He gets his pay before, and whether or not, the investor gets anything, either interest or dividends, with a prior lien on the gross revenues of the business. If the employe gets too much of that revenue and, in consequence, the investor gets too little or nothing at all, there won't be any more new capital invested in the business. And that kind of situation can bring on plenty of trouble for all concerned.

It has been recently estimated by managements and financial people that three classes of public utilities; namely, power, gas and telephone, will have to have around 10 billion dollars of new money invested in them during the next five years for expansion to meet the public demand for their services. A substantial part of this amount of new money is earmarked for the telephone business.

If investors supply that money, there will be more and better job opportunities both for the advancement of their present employes, as well as a large need for new employes.

One thing that has made higher wages possible in industry is that capital money has been cheaper, during several years past, than ever before. Now, however, there are increasing signs that investors are not so willing to put money into business enterprises at prevailing low interest rates. Investors including the big institutional investors such as insurance companies, have apparently made up their minds that they are not going to supply all the money needed for buying things for employes to work with unless they get a larger share of the gross revenue than they have been getting.

In the Sept. 24 issue of *Business Action*, a weekly report from the Chamber of Commerce of the United States, in an article headed "Venture Capital Problems Probed," this significant statement was made:

"The shortage of venture capital is widely lamented. An increasing number of businesses have had difficulty in raising equity funds, being thereby forced either to stop expansion or to finance expansion through plowed-back earnings or by going into debt . . ."

Today, it appears that one of management's prime responsibilities to its present and future stockholders is the continuance of its established pattern of encouraging venture capital and rewarding it well. Growth of small business is impossible without the energizing funds of venture capital. To the extent that we "dry up" the sources of venture capital—and unfortunately the process has gone a long way—to that extent, we restrict the launching and development and expansion of small business everywhere.

We need not worry too much about initiative or ambition or vision. These are inherent in the individual spirit of the people of this country. It is the "good old American way of life." We need only to remove obstacles and artificial barriers; to nurture and maintain an economic environment in which small business and big business alike can prosper and make their fullest contribution to advancing the standards of living for all.

What we should strive for in meeting all of the responsibilities of management—to the public, to the employes and to the stockholders—is understanding, patience, open-mindedness and courage. These are qualities that dissolve differences and make for cooperation, team-work and harmony. They lead to a permanent solution—not an armistice.

SERVICE, FINANCIAL PROBLEMS

By H. LESTER HOOKER
Member
Virginia Corporation Commission

YOUR organiaztion represents an industry of national importance to the public it serves, and to the public not now being served which is properly expecting to obtain service from Independent telephone companies occupying and now rendering service in their respective communities.

The Independent telephone business in the United States has made continuous and steady progress throughout the past until its combined business has now become a major utility business . . . At the close of business in 1947, Independent telephone companies had an investment in plant of 851 million dollars and their gross revenue for the same period amounted to 255 million dollars, and the industry had 6,360,000 telephones in service and employed 87,000 persons. The investment in plant no doubt has been increased substantially since January 1, 1948, as well as has the number of telephones in use, which, of course, has increased the income and number of persons employed by the respective companies.

We are in the midst of the most trying and difficult times the telephone industry has ever had confronting it. You are in the midst of a period when the demand for telephone service is greater than that ever before experienced in the development of your business. It comes at a time when you are unable to meet such demand promptly, and to meet it adequately will be sometime in the future; too far in the future to satisfy many of those desiring telephones.

It is difficult for the public to understand fully your problems as they really exist. Those desiring service during the war appeared to understand the difficulties confronting the industry at that time, and were very patient, but today it is a different story. To them the war is over, and they are not easily convinced that the industry is exerting its best efforts to extend its service to them. They have their troubles in whatever business they are engaged, but do not comprehend very readily that the other fellow's troubles are as great as theirs.

This is a problem that requires much energy, patience and diplomacy. The problem of the shortage of material, the delay in obtaining and receiving it, and the difficulty of getting efficient labor are some of the important items which are handicapping the more rapid expansion of telephone service and should be clearly and diplomatically explained to the prospective telephone user who has, in many instances, been long delayed for service, and continues to have to wait.

And then comes the further necessary explanation of what it is going to cost to obtain this service when it does become available. This is the most difficult task of all in most instances, and this is true, notwithstanding the fact that each dissatisfied person is fully cognizant of the high cost of all he buys or sells.

H. LESTER HOOKER

These are some of the problems of the telephone business with which you are intimately familiar. These are problems of service to the public that are essential to the successful operation of a utility. The confidence and respect of the public served is necessary. When a utility has lost the confidence of those it serves, it has lost one of its most valuable assets, and, unless such confidence is restored, its future will be most trying and unpleasant, if not in fact, a hazardous one. These are problems that must be encountered and to a reasonable degree at least solved.

These unprecedented demands of the postwar period have made it impossible to promptly provide service to all who want it, and to give each potential subscriber, the character of service desired. While the service at this time is not in all aspects as good as it should be, and not up to the standard that the regulatory commissions would like for the service to be, we are aware that it is better than it has been in the past few years and should steadily improve as conditions which now burden the industry become better.

Not only is the service better than it was a few years ago, but the service is of much greater value to the user. The telephone subscriber today can reach many times as many telephones in their local exchange area as was possible in the not too far distant past. There also has been a substantial increase in the demand for the service. Today the telephone is indispensable to a large percentage of the people. The quantity of service, the quality of service and the value of service have all greatly increased along with the upswing in business and social necessities of our present way of life.

Therefore, it behooves those who are in the telephone business to be ever alert and continue on their mettle at all times to strive to meet the public's reasonable needs in the future. This will require your best thought and the most careful planning for the future by the industry if it expects to furnish to the public the best possible service. The public expects the best. Its mind has been geared to that stance.

This kind of service necessarily requires money, and it is essential that telephone companies keep their business in a sound financial condition if these public demands are to be adequately met. It is of paramount importance that the telephone industry be kept financially sound. This is essential for the progress of the business, and for the improvement and expansion of the service. These matters cannot be accomplished unless the financial integrity of the business be maintained.

The telephone plant must be soundly conceived with reference to the present and future need of the service, the type of plant, the detail of design, and the plan of operation. It is necessary that there be strict economy in the cost of construction. It is of great importance that the plant and operations have an adequate capacity to reasonably meet the needs of the present and immediate future, with provision for economical expansion as conditions demand. This type of designing is necessary in order that the public receives the best possible service. It is also equally as essential that the undertaking be soundly financed, efficiently managed, and eco-

nomically operated if the public is to obtain service at lowest possible cost.

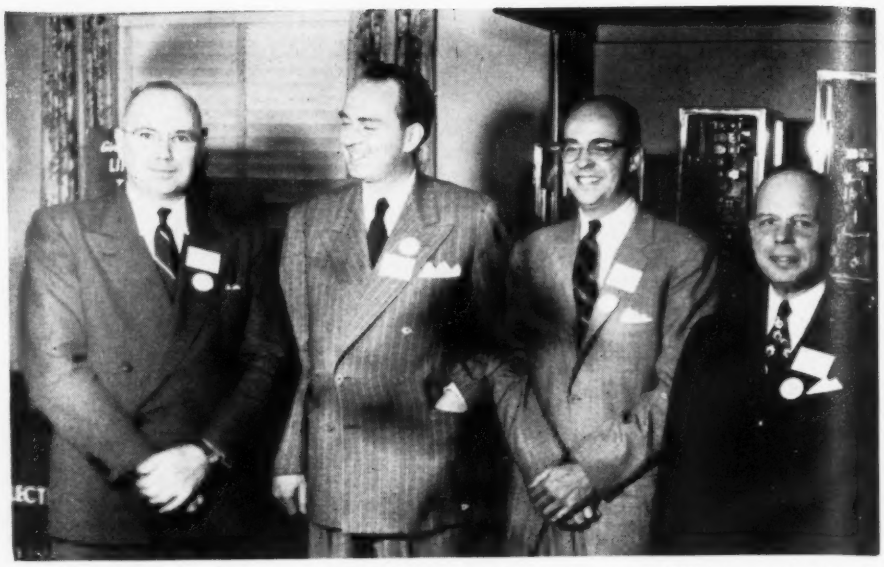
You are familiar with the expansion program now being planned and carried on which must continue as rapidly as possible if the needs of the public are to be adequately served. This program will require large sums of money. A substantial amount of this capital will no doubt be raised by some method of financing. The sale of common stock under existing marketing conditions is expensive, and preferred stock issues are almost out of the question. This has given rise to large scale financing through the issuance of debt securities, with the debenture playing a very important role in the program. The debenture constituted 58 per cent of the new money financing of the utilities during the first nine months of 1947, mortgage bonds 26 per cent, preferred stock 6 per cent, and common stock 10 per cent, an aggregate of 84 per cent in debt securities while 16 per cent was raised in equity securities. We find ourselves in the unusual position of having substantial growth of an industry presenting serious financial problems.

Private business differs from public utility business in many ways. One of the outstanding differences being that those engaged in a private enterprise are privileged to take large risks. If the venture is unsuccessful, they bear the full loss. If it is successful, on the other hand, they may enjoy the profits and there is no ceiling on what either the losses or profits may be. Rates of a public utility business, however, are established upon the approval of some governmental agency. Risks are moderate and profits are restricted.

In the case of non-regulated business, greatly increased demands for its product, or service, will result in the necessity of securing additional capital, but it is not compelled to do so. It may expand its business, if and when, such expansion may be economically sound.

When a business becomes clothed with public interest to the extent that the government exercises its sovereign right of regulation, the operator or owner is no longer free to make whatever charges that may be desired, to serve only such customers he wishes, with a quality of service he may elect and at a time that may suit his convenience. One of the paramount elements of public utility regulation has been the control of charges for the services rendered, the governing principle being that the charges shall be fair and reasonable to the public and utility alike.

You know, of course, that the regulation of an industry that is monopolistic in character is a protection to the industry as well as to the public it serves, if such regulation is fairly and wisely administered.



Left to right: H. F. LELLO, L. H. WARNER, T. G. GARY and C. S. CADWELL, all of Automatic Electric Co.

The value of the service being rendered by the telephone companies today is better recognized than it has ever been in the past. The needs for its expansion are to meet the demands of the public which are required to take care of their essential necessities of business relationships and social contacts. Not only has the subscriber demand for telephone service greatly increased, but moreover, the individual use made by the individual user is far more extensive today than at any time since the establishment of the telephone industry. And, as this manifestation for increased expansion of the telephone business has become unprecedented, so, also, has the cost to the industry to meet the dsired expansion increased by heretofore unknown and uncalculated costs.

The unit costs have been increased tremendously by reason of the increase in wages paid for labor, as well as the high cost of material. It is evident from the continual requests being made to the industry for additional extension of service and the complaints made to the various regulatory authorities for failure to obtain service that a greater responsibility than ever heretofore is being imposed upon the industry and the regulatory commissions. To meet adequately these increased requirements is a mutual problem of the industry and regulatory agencies. An attitude of complete confidence and cooperation on behalf of the industry and the commissions, as well as the public is essential to reasonably meet the public requirements of this expanding program.

This program of expansion, of necessity, brings into being the importance of the financial requirements of the industry to finance it. The enlargement and adequacy of service, and the need for additional capital, go hand in hand in the proper development of the telephone business. You cannot successfully have one without the other. The two are inseparable and essential to meet satisfactorily the public requirements. The how-to-raise the necessary capital to meet these financial needs is the $64 question. To obtain the necessary capital will not be so easy for some of the companies. It will not be wise for the companies to become too heavily burdened with debt. I am confident that you will agree that capital structures must be built upon bases of sufficient strength and stability to withstand any depression which may follow the period of inflation that is now obviously upon us.

During the fall and winter of 1945 and 1946 manufacturing industries obtained large amounts of new capital for reconversion and expansion purposes. A substantial portion of this capital was raised through the sale of common stock largely at from 20 to as high as 40 times current net income. A large amount of capital was invested in these securities by individuals in anticipation of increased earnings during post war prosperity. This demand for new money has undoubtedly decreased the supply and there is today considerably less money available for investment in equity securities.

Hence, we see that money is not now so easily obtained as it was in the recent past.

Thus, we find the law of supply and demand manifested in the increased cost of money now in evidence. Interest

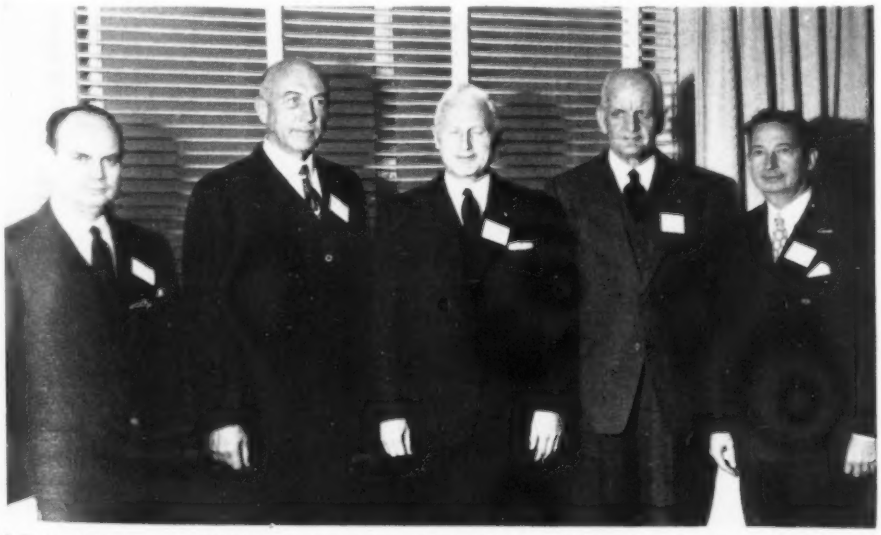
rates have stiffened during the past several months, narrowing the differential between the return on equity capital and the return on borrowed capital. This has made utility common stock less attractive to the investor, especially is this true as to those wealthy individuals who desire to invest in the securities of an enterprise paying higher dividends though the security may not be as financially sound. This condition is adverse to the sale of common stock of utilities. Therefore, by reason of these circumstances, utilities have largely had to look to the institutional investor for their capital needs, and there have been limitations imposed upon this class of investors, limiting the percentage of their portfolios which may be invested in equity securities, thereby creating a marked tendency to finance through debt securities.

These Stromber-Carlson representatives photographed at the convention are, left to right, M. A. CLAY, R. A. HACKBUSCH, N. W. BALDWIN, and L. L. SPENCER.

The debenture appears to be gaining in popularity. There have been a number of 15-year debentures issued during the past year. There is also an increase in the use of the convertible debenture, that is, the debenture which may be converted into common stock. In cases where the financing has been by mortgage bonds, and such bonds have reached the limit allowed in the mortgage indenture, it may be possible to perform additional financing through the issuance of debentures, since they represent debt securities which institutional investors may be permitted to purchase.

In order to mitigate the creation of a somewhat high debt ratio the use of the convertible debenture is increasing. This has been said to be an economical method of equity financing. The results of such financing, however, will be largely influenced by market trends. Should the market value of the common stock remain substantially lower than the conversion price, there will be very little exercise of the conversion privilege. If, on the other hand, the trend of earnings should be upward, there will be substantial conversions, which will decrease the debt ratio.

The plan of financing and the expansion program should be carefully coordinated so that additional capital could be secured in the future when and if needed. If immediate financing is performed in such a manner as to expand debt ratios to or beyond reasonable limits, the raising of new capital through the issuance of debt securities will be impossible and the issuance of equity securities by a corporation heavily burdened with debt will be very difficult.



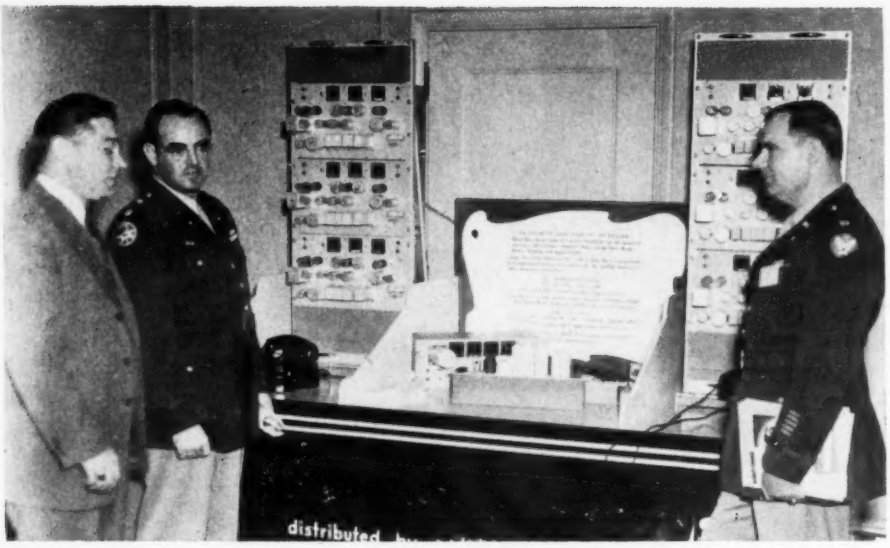
Left to right: L. J. DENNEY, R. A. GANTT, GEN. W. H. HARRISON, ADM. E. W. STONE and H. C. ROEMER, all of Federal Telephone & Radio Corp.

It cannot be seriously questioned that the earnings of the industry should be kept at a level high enough to attract sufficient capital to the industry to meet its reasonable demands. This is necessary for the proper protection of the public interest, and it is not detrimental to the best interest of the ratepayer. It is the duty of the regulatory commissions to exert their best efforts to keep all utilities, at all times, in a safe and sound financial condition. Investors cannot be expected to invest in securities of a utility when its rate of return is so low as to make it doubtful in the minds of the investors as to the wisdom of such investments.

If such a utility is able to secure money at all, it will not be able to do so on as favorable terms as will the utility that is and has been receiving a fair return on its investment consistently for a number of years. This is adverse to the best interest of the utility and to those who use its service. Regulatory commissions should have the alertness and the courage to aright situations such as these.

The increasing of rates to utilities is not a decision that will bring much public acclaim, but if it is the correct conclusion to be reached, it should, in all fairness and good conscience, be the decision rendered. When utilities are required to serve the public at miserly rates of return on their investments in property dedicated to public use, the public as well as the utility suffers. The public demands and should receive good service. It is essential for the best interest of the public. But good service cannot be maintained when the rates are unreasonably low.

An insufficient rate of return to a utility necessarily means a lessening of the service being rendered to those it serves. This condition brings about criticism of the utility and causes the



MAJ. J. P. MORAN (center) and MAJ. JOHN HORVATH (right), of the Communications Office of the U. S. Air Forces, look over carrier equipment.

filing of complaints with the regulatory commissions. This condition brings about dissatisfaction with the users of its service. It creates poor public relations for the utility for which it may not be to blame. A utility cannot maintain a high grade of service unless it is being fairly compensated on its investment. The subscriber should pay for good service and should receive it. Poor service at any price is high.

It has been my experience that the public is willing to pay reasonable rates if the service is satisfactory. It has been my observation through the years that the people are inherently honest and desire to see the other fellow treated fairly, and by the same token expect to be fairly treated. It is the obligation of the various utilities and commissions to see that the facts as they exist be fully explained to the public. When this is done it will, to a substantial degree, minimize the criticism leveled at the utilities and commissions.

The interest of the public is being retarded and governmental efficiency is deteriorating today for the reason that some of those holding positions of grave responsibilities are giving more time and thought to political expediency than they are devoting to the performance of their public obligations. They appear to be more interested in being retained in public office than they are in the proper administration of the affairs of state. Obligations of government seem to be of minor importance. What apparently is uppermost in the mind of these self-seeking souls is what may be done, or what promises may be made, that will keep them on the taxpayers' payroll. They are not much concerned about the solvency of the taxpayer, or the financial soundness of government.

Liberties and privileges long ago established at much cost and great sacrifice by the people are to be cast aside for a doubtful political "mess of pottage." It is time for the citizenry of our country and of the respective states to bestir themselves. The encroachment of the federal government on the rights of the states has already extended too far for the best public interest. Any further attempt to extend federal authority over states' rights should be vigorously resisted.

"Eternal Vigilance is the Price of Liberty."

It is now proposed to deprive us of privileges and liberties more devastating than ever heretofore proposed. The rights of state governments are to be uprooted and the citizens of the respective states deprived of their rights to have a voice in many of the affairs of state governments.

If such proposals should become the law of the land, to Washington we will look in the future in order to ascertain just what our individual rights are if some of those now occupying positions of power may be able to put their proposed program into legal effect, and to lodge these rights in the hands of the federal government and federal authorities.

D. J. WHITE (left), Everstick Anchor Co., and BRUCE LOBDILL, A. B. Chance Co.

Should an unsound policy such as contemplated be tolerated along with its real and potential dangers? Should the citizen bear burdens which he knows to be unnecessary rather than undertake the wearying struggle for relief? And if he fails to resist, has he any reason to hope that his passive attitude will save him from still heavier burdens?

It is natural for any human being to avoid as many difficulties as he can, to seek quiet at almost any cost and to endure much to save the effort of resistance. Indeed, if it were not for these characteristics of human nature, extravagance and political expedience would not be so characteristic in government. But there comes a time in the life of every thoughtful citizen when he must inspect the results of inactivity and nonresistance, and decide for himself whether or not he, as an individual citizen will continue silent or exert whatever influence he may have in opposition to unsound and costly public policies.

In conclusion, may I again remind you that this complex and uncertain way of life in which we find ourselves requires a rededication to our respective duties and obligations as good citizens. Both at home and abroad the republic is beset with exceedingly difficult problems.

Our way of life is being attacked from within and from without. The right to administer our local affairs may be in jeopardy. To solve these problems correctly calls for the best that the nation has in honest, intelligent and courageous leadership. The need for intelligent and unselfish service was never greater than it is today. We are living in an age of ever widening scope and ever quickening pace. As the mechanism of life and government becomes more complex, men of trained minds and men of trained hands are needed to plan, design, build and operate the vast machinery that serves our wants and our wishes.

KEYS FOUND

A leather key case, containing two automobile keys, two large and two small door keys, was found at the Stevens Hotel during the USITA convention. The owner may secure the case by writing to TELEPHONY.

YOUR ASSOCIATION IN ACTION

By CLYDE S. BAILEY
USITA Executive Vice President

AT THE very outset, I would like to pay a personal tribute to the memory of my good friend, Floyd D. Ridings, who served as this association's secretary for almost five years. When over him the purple curtain was drawn at noon on Aug. 14, the association lost a capable, loyal officer and servant. We who labored with him lost a splendid office associate, a fine working companion. He wore well. His spirit will long linger among us. . . .

We in the telephone business are engaged in an occupation that touches the body politic importantly and intimately, millions of times each day. Both from the standpoint of statutory service requirements and of history and tradition the message must go through. . . .

We in the Independent branch of the telephone industry have an important obligation to acquit. It is an obligation to the people to whom we provide service by more than 6,300,000 telephones; it is an obligation to the people who have entrusted their savings of more than $850,000,000 to 6,000 Independent companies; it is an obligation to the 87,000 employes of those companies.

The leadership required to fulfill our duty to the public, to the investors, to the employes must be a wise leadership and it must also be a dynamic leadership. It can not be a phlegmatic leadership. . . .

There is an old saying that friction is native to man. Perhaps it is too much to expect that within the foreseeable future we shall be free of emergency, internal strife, high taxes, shortages, held orders, need for money for plant expansion. Maybe the things we call emergencies are not emergencies at all. Maybe they are the norm, to be accepted as a part of our regular life. If so, then we should stop being apostles of such gloom as we see on some faces. We should right-about-face and determine that we shall be apostles of cheer. But of course at the same time we should wherever possible step up the tempo in an industry already conspicuous for its dynamic qualities.

Is there any "foreseeable future" in which we have reason to believe that we shall be free of emergencies, high taxes, held orders, shortages and what not?

Unhappily the facts of current life afford little ground for optimism. Secretary of Defense Forrestal said just a few weeks ago that the United States "is confronted with the greatest series of tasks that have ever befallen the lot of any nation in history" and that at the same time we are finding it necessary to rebuild our military power less than three years after we set out to tear it down.

And in an address in Chicago a few weeks ago Mr. Forrestal remarked that the tension between the United States and Russia will continue for the rest of our lives and those of our children.

The sum of 14 billion dollars is being devoted to the military this year. It is reported that the military next year will ask for 15 billion. On Oct. 3 one of the national press services carried a news story, which you may have read, that the army, navy and air forces staff chiefs have drafted a plan for defense, not for two years or five years or 10 or 20 years, but for 50 years. They envisage in time intercontinental rockets with atomic warheads.

Stockpiling has been going forward, timidly up to this time the Munitions Board has said; from this point forward, it will be aggressive. Within recent weeks the American people were told that a billion dollars worth of stand-by war production orders designed to go into effect instantly on a future "M-day," will soon be placed. Air force groups are being created. Young men are again being taken into the draft. Our nation is lending certain members of its military to friendly nations in order to assist them in their training programs.

The Marshall Plan is being carried out. It is reported that a lend-lease program to assist in arming the nations of western Europe may be offered to Congress at the next session.

The Wall Street Journal in a front page article last month stated that an Emergency Powers Act is ready for Congress in the event war should threaten more seriously. This is said to be a comprehensive measure which would dwarf the powers that were exercised during World War II. It would give the government sweeping power to impose priorities and allocations, draft industry and labor and keep them producing, requisition property and censor communications, regulate prices and wages, and ration all important goods used by men and industry.

The federal government is seeking to rent 100,000 more square feet of commercial space in Washington for public purposes.

Getting a little closer to the communications industry, most of us know that the National Security Resources Board has had a task committee working in Washington on a revision of order U-2, the limitation and conservation order of World War II days which sets forth the rules under which telephone companies may purchase and manufacturers may produce telephone equipment and supplies. Communication advisory committees are being formed.

The Civil Defense Planning Agency, among its other activities, has in course of preparation a plan for the most effective utilization of telephone communication in the event of a major emergency. Important officials of the government have called representatives of communication enterprises into consultation on protective measures to be taken.

Thus, nowhere in the stepped-up tempo of our national defense mechanism are the nation's needs for rapid communication being overlooked. This is in harmony with what the Senate Committee on Interstate Commerce said at the beginning of the last war when it remarked that the maintenance of an adequate, comprehensive, far flung national system of communication is as essential to the effective prosecution of the war as the manufacture of planes, tanks, guns and ships.

Now of course I do not pretend that I am telling you anything that is particularly new. I do not draw attention to these things for the purpose of attempting to frighten anybody. I do it for the purpose of assisting in the development of a proper perspective, a perspective which takes adequately into account the facts of current life and the problems likely to confront us in the months and years ahead. . . .

Now let us take a look at your "National Association in Action," and see whether *it* is dynamic and whether it is acting boldly and mightily, and not feebly.

In any review of the kind I am making today I cannot overlook mentioning the activity of your association in

connection with legislation to amend the Fair Labor Standards Act.

As you all know, minimum wage bills were bottled up when Congress adjourned. They died with the ending of the last Congress but will, of course, be introduced at the next. About two dozen bills called for an increase in the minimum hourly wage in amounts ranging from 65 cents to one dollar. Three bills were pending to repeal our 500-station exchange exemption. . . .

Four different hearings on minimum wage legislation have been held during the past three years. Your national association has appeared at each one and presented testimony to show the harmful impact of legislation of this kind upon the economic life of small business in small towns. We have also filed briefs and statements. This is an activity directed principally for the benefit of the smaller segments of the industry, the segments in most need of protection, segments for which the association traditionally and historically has shown a most solicitous regard.

I am still unable to afford the luxury of legislative prediction, but I am willing to say that according to present indications this particular legislation at the next session will receive serious consideration only under the most unusual conditions which there is no reason for any informed person to think will exist.

I am sure that I do not misjudge the temper of this association and its chosen representatives when I express the opinion that they will manifest in the future no less zeal than they have in the past in seeking to protect the interests of Independent telephone companies in respect to such legislation as that I have discussed.

If we read the press properly and sense accurately the trend of the times, there seems to be a growing disbelief in the economic validity and humanitarian quality of minimum wage legislation.

In periods of declining prices it produces unemployment when employers are unable to pay inflexible statutory wages, and it thus fails at such times to give protection to the very people in whose supposed interest the legislation was originally enacted. In periods of rising prices with high employment, competition in the labor market provides its own satisfactory adjustment of wage scales.

Many people who have stopped long enough to think the theory of minimum wage legislation through hope that some day an enlightened Congress will wipe such an enactment off the federal statute books and leave free collective bargaining between employer and employe to take its proper place in a free system. One bill is now pending in Congress to repeal the Wage and Hour Act, but its author has frankly stated he recognizes that public opinion, although being educated, has not yet developed to the point where repeal can confidently be looked for.

Your association has continued to provide representation of the Independent viewpoint in connection with federal tax legislation. During the past several years our Tax Committee has made appearances before congressional committees in support of elimination of telephone excise taxes and of moderating the burden of corporate taxation particularly as it concerns such small companies as are found in our segment of the general economy. Conferences with members of Congress and with other public authorities in general have been held, letters have been written, briefs and statements have been filed.

Member companies have been kept informed of developments and asked to lend cooperation whenever it has seemed desirable to invite it. . . .

During the past year your association has been giving renewed attention to our relationships with Bell System companies in property acquisition cases. It is the historic desire, intent and purpose of our association to preserve in full vigor the integrity of the Independent branch of the telephone industry. In an address to our convention in 1922, E. K. Hall, then a vice president of the American Telephone & Telegraph Co., made this declaration:

"I say without any question or equivocation or hesitation that in our judgment it is in the interest of the two groups, it is in the interest of the industry, and in the interest of the public, that there should continue to be two strong powerful groups in the industry."

At a meeting of our Bell Acquisitions Committee with representatives of the AT&T within the past two months we were assured that this expression by Mr. Hall of 26 years ago still stands in substance as the opinion of the Bell System today.

We all know that as a result of various circumstances some of which have vitally affected the public interest, it has been necessary for Bell System companies to take over Independent telephone exchanges in some instances. These have ordinarily, though not always, been what are called distress cases in which the quality of service had deteriorated, property had been allowed to deteriorate, there was no Independent company ready, willing and able to take over, and regulatory commissions were demanding that something be done to satisfy the public. However necessary the acquisition of such exchanges by Bell companies in order to provide the public with satisfactory service, the purchases have resulted in an attrition of the Independent position in the industry.

On the other hand, it sometimes happens that for sound operating reasons coupled with considerations of the public interest it becomes desirable that a Bell company exchange should be acquired by an Independent company. These are ordinarily situations in which a Bell exchange is surrounded by Independent territory and its seems logical and desirable, from standards of public interest and of efficiency and economy of providing service, that the exchange should be acquired by an Independent company. The Bell System recognizes that such situations may exist. . . .

At the instance of our Bell Acquisitions Committee we are endeavoring through the questionnaire method to obtain information as to the identity of Bell System exchanges which fall within the category I have described. While neither our committee nor our association can undertake to act as a negotiating agent for any member company in the purchase of a Bell exchange, it will be our purpose to lend such aid as may seem reasonably proper in order to be of assistance in such cases, in the interest of providing the best service possible to the public and of contributing to the preservation in full vigor of our branch of an essential industry.

Ever solicitous of the smaller units in our branch of the industry, our board of directors earlier this year created a Committee on Problems of Small Companies and charged it with the responsibility of studying these problems, offering advice whenever it can be done, and making recommendations for future action.

The committee is not unmindful of the fact that many of the vexatious questions concerning the smaller companies are continuing ones and that study groups over the years have sought solutions. This, however, has not deterred the committee from going forward. It is entirely sympathetic with the plight of the owners of many of the small exchanges.

This committee has embarked upon several economic studies affecting certain small companies in the state of Indiana, which were chosen somewhat in the nature of test cases to determine

whether it might be possible to evolve a pattern of recommended action. These studies were undertaken through the cooperation of the Indiana Telephone Association, Indiana Bell Telephone Co., the Home Telephone & Telegraph Co., Fort Wayne, and the Indiana Associated Telephone Co., Lafayette. . . .

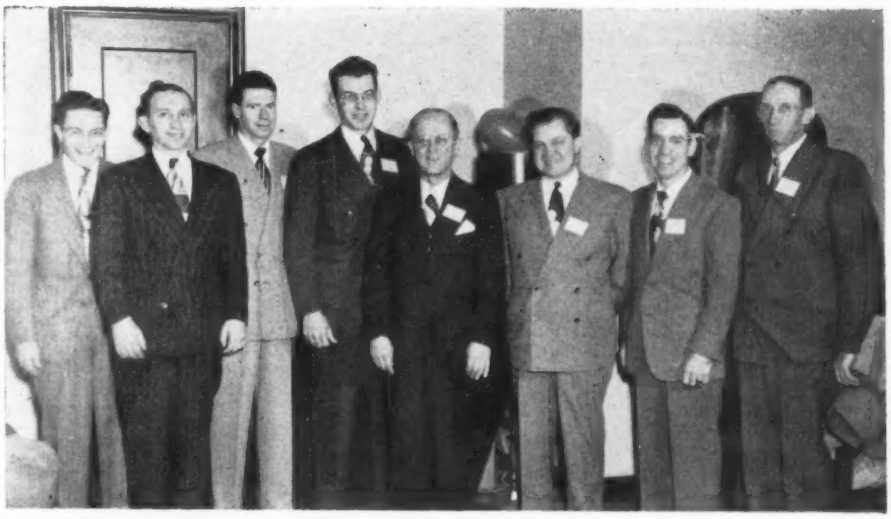
Our Toll Compensation and Settlements Committee which over the years has performed outstanding service, has been engaged in recent months in reviewing various data to determine whether or not further adjustments in toll compensation schedules are justified in view of wage increases granted in the industry in 1947 and since, and in view of other rising operating costs. This committee can be relied upon as in the past to perform its duties with diligence in the interest of ascertaining whether Independent companies are being adequately compensated and receiving their fair share of revenue from toll business.

Our Advertising Committee has continued to study and promote the use of advertising by Independent telephone companies. The committee members have taken their duties most seriously and applied themselves diligently. They meet periodically for the purpose of formulating recommendations for the issuance of advertising copy by the Telephone Advertising Institute. They have done a vast amount of constructive work the nature of which you are already familiar with if you subscribe to the institute's services. The institute was brought into being pursuant to a resolution of our board of directors several years ago. It has progressively expanded its usefulness.

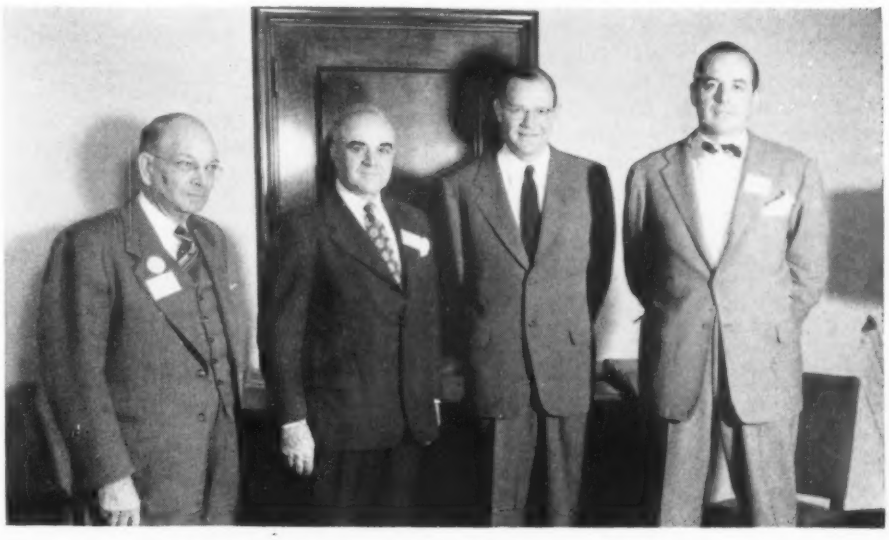
Our Dial Interexchange Committee at our convention last year presented a proposed form of "guide" contract for use between two companies in those instances in which one company converts a small manual exchange to dial operation and calls upon a connecting company to perform "control office" work, such as rendering information, repair and auxiliary services. Apparently the committee did a pretty good job of draftsmanship, because no complaints respecting its provisions have been noted. This committee also is keeping itself informed of developments and of operational requirements in respect to toll dialing.

Your association has been called into action a number of times during the past year in connection with important proceedings before the Federal Communications Commission involving the allocation of frequencies for mobile radio telephone service and other applications in the field of tele-

Left to right: J. S. FARRINGTON, Centerville, Iowa; G. E. VOYLES, National Telephone Supply Co.; H. A. BROWN, Cooperstown, N. D.; NEIL SHRECK, Bertrand, Neb.; L. H. BURNS, National Telephone Supply; W. R. FITCH, Whittier, Calif., Associated Telephone Co., Ltd.; C. H. KLEIN and J. E. WINCHESTER, both of National Telephone Supply.



Left to right: M. WOLF and J. GODDMAN, of The Heller Co.; W. C. SNYDER and C. A. GILLESPIE, both of Buckeye Telephone Supply Co.; H. M. DeGROFF, Troy, Ohio; R. L. HEPNER and R. T. SNYDER, both of Buckeye Telephone Supply, and E. R. ARNOLD, Fairview, Ohio.



Left to right: PAUL CARTER, Warrentown, Mo.; C. KAUFMAN, R. T. BEARD and W. H. LOOMIS III, all of the Loomis Advertising Co.

phony. Our Radio Service Committee has assisted in the preparation and presentation of statements and briefs designed to acquaint the federal commission with the need in the public interest for the allocation of adequate frequencies to the telephone industry to enable telephone companies to make telephone service more universally available.

There is a great clamor for frequencies, and in the present stage of radio development there are only so many available in the radio spectrum. It is the position of our association that conservation of the spectrum will result if telephone companies are allowed frequencies for providing mobile telephone service to all who need it without discrimination, instead of spreading the frequencies over many industries. But there are many interests that disagree with this philosophy.

Among the many incidental features of pending FCC proceedings is the question of mandatory physical interconnection of telephone facilities with those of so-called limited common carriers such as buses, trucks, taxicabs, and others. We are resisting any such order, taking the traditional and logical position that interconnection of facilities with non-communication carriers is not in the public interest because of the resulting diversion of responsibility in providing adequate, efficient and universal service. . . .

Our Plant, Traffic, Commercial and Accounting Committees have done good work during the past year. . . .

In addition to the general activities I have been discussing, your association also keeps in touch with developments of a general and technological nature by having representatives to such organizations as the United States Chamber of Commerce. In the American Standards Association our association is represented on the Committee on Acoustical Measurements and Terminology, the Committee on Specifications for Wood Poles, the Committee on Radio Electrical Coordination, and the Committee on Electrical Standards.

The association has also had representation on the Radio Technical Planning Board (which has recently gone out of existence). This was a technical group that conducted studies into various aspects of the radio art. The association has representation on the Radio Technical Commission for Marine Services, an agency created pursuant to a suggestion by the State Department to deal with radio aids to navigation. The association has representation on the subcommittee on selective signalling of the Radio Manufacturers Association. The association also maintains liaison with the military to assist in the reactivation of the affiliated unit plan. . . .

Photographed in TELEPHONY's room are, left to right, A. H. HAWKINSON, Greenlee Tool Co., MILDRED METTS and VIVIAN RYDEN, both of TELEPHONY, and J. R. GRAVES, Washington, D. C.

So much by way of a summary of the highlights of your association in action during the past year.

Before I bring this report to a close I would like to say just a few words about a subject which I think is one of the most pressing for all of our companies at the present time.

In my occasional talks before state telephone gatherings I have been discussing the need of our companies for adequate earnings in order to continue to induce the flow of equity capital into our business. The existing timidity of capital may be in part the result of an atmosphere surcharged with the threat of another war, in part to a confiscatory tax structure, in part to uncertainty over political policies in the domestic field. But part is certainly also due to the starvation wages which oftentimes are paid for the use of the investors' money in a regulated enterprise owing to unrealistic rate regulatory policies.

Equity capital has been called the "essence of a dynamic economy." The private investor has been called the indispensable man in a system of private enterprise. The wages for the use of money—in our business called rate of return—must be increased. . . .

In my address to our Executives Conference in April of this year I said:

"The needs of the public for continuous, adequate and efficient service and the moral justness of seeing that reasonable protection surrounds the savings of the investor are such as to suggest the desirability that commissions review their general procedures in an effort to overcome the cause of rate-making delays and the inevitable hardship and criticism resulting from them."

In a dynamic, competitive economy, one in which changes can and do take place quickly, regulatory commissions simply must introduce a flexibility and expedition into their methods if telephone companies and other utilities are to continue solvent, if increased operating expenses are to be met, if investors are to be encouraged to continue to put their money into our business to enable plant expansion to take place so that public demand for service may be satisfied.

The regulatory commission is an important cog in an economy of private utility enterprise and no enlightened commissioner wants that system superseded by substitutes which are being tried with questionable results by countries that don't begin to have the large telephone saturation, the high quality of service and the high standard of living that are enjoyed in the good old U. S. A.

During the next five years telephone companies must finance millions and millions of dollars of new construction. This must be done in competition with gas, electric, transportation and other utilities, as well as other forms of private industry.

During the next five years telephone companies will have to go in for rate increases, or further increases if some have already been obtained. Telephone companies have no way of immunizing themselves against the economic and other forces which produce increased operating expenses and the cost of doing business—wages, material, equipment, taxes and other items.

(Please turn to page 98)

SERVICE—REGULATORY SHORT-CUTS

By HARRY M. MILLER
Chairman
Ohio Public Utilities Commission

I AM genuinely grateful to you and to your officers for the opportunity to meet with you in your convention. I feel "at home" with people of the "Independents"—we have many of them in Ohio.

More than 11 per cent of the Independent telephones of the United States are located in my state. Four of the 37 Independent telephone companies in the United States having gross operating revenues in excess of one million dollars in 1946 are Ohio companies. We have more Independent telephones than any other state. Over 200 Independent telephone companies in Ohio serve 80 per cent of the state's area, but only 20 per cent of its population.

I cite these facts because we are proud of them. We are keenly aware of the vital part which they perform in the economic and social life of our state. We know that by their very nature, they are responsive to the varying needs of the people they serve. Their existence is evidence that private enterprise on a local level is desirable.

The people of our state, in common with what I believe to be the desires of people elsewhere, are today demanding telephone service of a reasonably high quality. They are merely asking, however, that they be furnished the kind of service which the progressive art of your industry has made possible—at a price. Measured by your technical ability, the public demand is all together, fair and reasonable.

You have done a splendid job in informing the public what you can do in the way of service, but perhaps not such a convincing job has been done in explaining how it must be done—dollars and cents wise. It may be true that the research man in the physical laboratory has done a more thorough job than the manager in the front office. At any rate, our observations convince us that today the public, generally, is not complaining so much about the cost of telephone service as it is about its quantity and quality. In brief, it appears that you have the *ways* to meet the public demand if you had the *means*—subject, of course, to the limitations of production and materials.

I assume that the subject assigned to me implies that I discuss from a commissioner's point of view some aspects of the "means" of the problem. I feel certain that those of you from my state do not want me to remind you here in Chicago of the extent of demands for service—you hear enough of it back home.

You are more familiar than I with the causes which have brought about the present situation. It is apparent to all, however, that until recent times many users of telephone service were content with service which was inadequate and unsatisfactory measured by the standards of your industry. These users, because of their financial circumstances and otherwise, demanded nothing more.

The charge for the service was likewise sub-standard. The service and the charge were responsive to the local situation. These practices were naturally reflected in the entire operations of the company, resulting in poor maintenance, inadequate accounting, inadequate accruals for depreciation reserves, if any, and many other deficiencies. The capital invested in such companies is gradually dissipated. Many of the smaller companies which followed this course have been taken over by larger Independents, and many today face the same future unless prompt and effective means are provided for their salvation. The problem is doubly difficult of solution. Not only must the errors of the past be corrected, but the changing and increasing demands of the public require that new capital be invested in the meantime.

H. M. MILLER

Another group of companies which have been, and are currently providing satisfactory service to their present subscribers, are faced with demands from additional subscribers, and with increased usage from present subscribers. Their margins of plant have been exhausted and new capital is required to restore it. Here, again, in many instances, rate structures now in effect were not designed to meet the situation which the demand creates.

Poor management and faulty practices will continue to exact their tolls in poor and inadequate service, and in the ultimate extinction of the offending companies themselves. In our own state the accounting and engineering staffs of our commission, in cooperation with the Ohio Independent Telephone Association, are all doing what they can to assist the smaller companies in improving themselves in respect to improved accounting and other phases of management. These are matters which can be corrected by the companies themselves if they desire to do so. It might be observed that the ill consequences of these practices from an industry standpoint are not erased by the absorption of a defunct company by another and larger one—they are merely transferred.

It has been claimed that, in many cases, problems more fundamental than those just mentioned are involved. In many instances, it is asserted that rates which were designed to meet prewar economic conditions are no longer adequate to meet the situation created by the impact of postwar costs; and further, that the traditional method of regulation of rates of public utilities does not permit these industries to adjust their charges for service with the same facility as unregulated business and, therefore, their earnings are unduly impaired and they meet with difficulty in competing for equity capital with business not subject to regulatory controls.

If these claims are only in part true, they present a challenge not only to the regulatory commissions, themselves, but also to the industries which are regulated.

Today's demands upon your industry, as well as upon all private enterprise subject to regulation, can be adequately met only if courage, intelligence, and a devotion to the highest ideals of public service are demonstrated by you, and by the regulatory commissions. In a limited sense you represent the investors in your enter-

prise, and in a like sense we, the regulatory commissions, represent the consumers. In a broader and deeper sense, together, we represent a substantial segment of our economic and social life. In an historic sense, the two of us cannot indulge in a "sparring match" without doing violence to the public interest and our democratic way of life. Only utility managements and regulatory commissions of small vision can think otherwise.

With this concept of the nature of our obligations and with a determination that we shall be guided by it, I am confident that the regulatory commissions can be helpful in solving the problems that confront your industry. It is imperative that we solve them together in this spirit, because unless we do, you will no longer be managers, and we, commissioners — we, together will be civil servants working for a government bureau.

These six Signal Corps civilian telephone engineers represent nearly 200 years of telephone service. They are, left to right, RAY BLAIN, OTTO KOECHER, H. C. STARKWEATHER, H. F. BOSSERT, FREE CALHOUN, and P. L. SMITH.

Some years ago while serving as an assistant to the governor of our state, I had occasion to submit to him my recommendation upon a matter of some consequence to the public. In doing so, I unwittingly stated that I thought my recommendation was the "popular" thing to do. Whereupon, he said, "Did I understand you to say the 'popular,' or the 'proper,' thing to do?" You will readily understand the embarrassment I suffered on that occasion. On this occasion I trust that I shall say the proper thing.

In the absence of statutory or constitutional limitations imposed upon state commissions, they are no longer bound by legalistic formulae in the determination of just and fair rates. In the prescription of rates, it is generally conceded that public utilities are entitled to fair compensation for the services they render — compensation which is fair and reasonable *at the time* they are rendered, or are to be rendered. A just rate must be so—not only in legal, but also in an economic sense. Unless regulations can prescribe such a rate under our present system, the only alternative is public ownership. The exercise of the latitude which has been given to regulatory commissions, and the effects which arise therefrom, impose a solemn responsibility.

It is with respect to the discharge of this responsibility that my subject indicates I suggest some "short cuts." If the phrase "short cuts" is there used in its popular sense, I am licked before I start because I know of no way it can be done. If, however, the phrase indicates what I'm certain it does, namely, some means whereby the regulatory process can be expedited, and fairness and justness be the result, I may make a few suggestions.

I have mentioned the claim that the regulatory process does not promptly recognize the impact of sudden changes in costs, and other factors. The claim itself suggests that something be done to "speed up" rate adjustments. In accomplishing this objective, I believe that you, yourselves, can make a substantial contribution if you make it a part of your program to keep the commissions of your own states as fully advised, currently, as you can. Many of the companies doing business in our state follow this practice, and in addition, by every means available, inform their subscribers of their situation, and of their need for increased rates. Too often the conditions affecting a company are not made known either to the commission or to the subscribers until a rate case is filed. Many of the questions which would arise in the course of a rate case hearing can be answered to the satisfaction of all interested parties if proper, preliminary information has been supplied.

For example, the consuming public should be currently informed with respect to costs affecting their service. They should be advised that not only do they make demands of the company, but that the employes of the utility do likewise. In this respect, it should be said that the regulatory process must measure up to the exigencies of the situation. It is desirable that regulated industry be able to attract to it that type of employe which will assure the character and continuity of service to which the public is entitled.

A public utility must make employment by it, having due regard for the factors of possible advantage which it can offer, as attractive as other industries having comparable requirements. After management has exercised its fair judgment in the matter, regulatory commissions should assist in finding ways and means to give prompt relief to the impact of the exercise of that judgment.

In recognition of the current situation with respect to wage and other costs, the New York Public Service Commission in its annual report made this comment:

"On behalf of the utilities it is said that they are entitled to higher rates because of increased wages, cost of materials and mounting local and federal taxes. In the years since 1940, increases in wages and other costs were offset to some extent by economies insisted upon by the commission. However, a point has been reached where the mounting costs can no longer be ignored. Wages cannot be continually increased without an increase in the cost of utility service. In most instances, utilities, like other business enterprises, have undergone three rounds of wage increases. In the case of private business and industry, the full amount of a wage increase is generally passed on to the public. In the case of regulated utilities, however, their claims should be scrutinized before consumers are required to pay higher rates and passed on to the public to the extent necessary to produce reasonable rates."

The public demand for service can be met only if facilities therefore are available. Utilities can obtain facilities only by the expenditure of money, and money must come from the investor. The demand for more and extended service is a present demand, and so is the demand for money immediate. The regulatory process must gear itself accordingly. Utilities must first attract the necessary capital, and, secondly, pay for its use. The ability to promptly attract, and to pay for the use, of capital are directly related to the ability of

the utility to secure a fair return upon it.

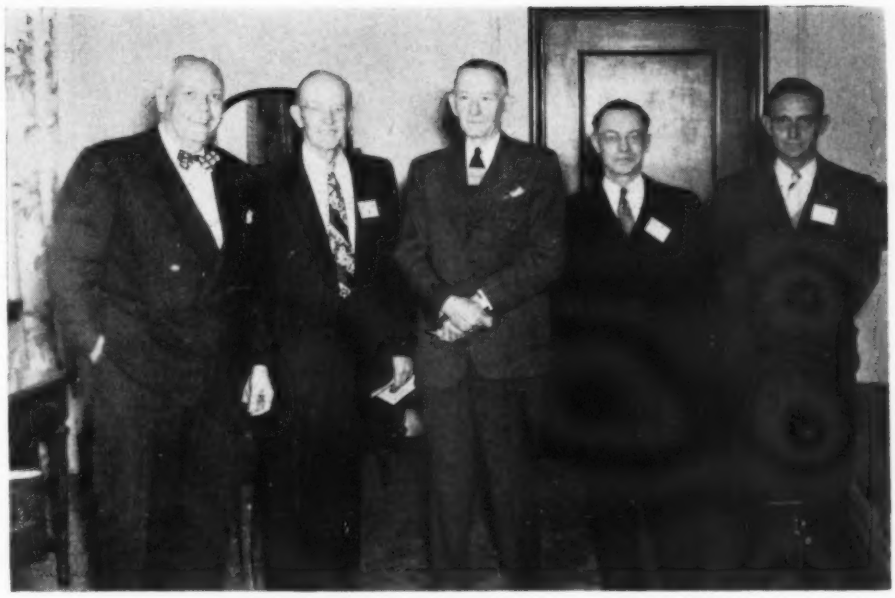
What is a fair return and what can the regulatory process do to assure that it is expeditiously provided?

Just about three years ago, one of the wisest men in the field of public utility regulation, the late John E. Benton, then the advisory counsel of the National Association of Railroad & Utilities Commissioners, prophetically said:

"The . . . case, just cited, was a case in which economic changes required a very great reduction in the rate base to produce fares which were just to the public, but situations may arise in which the rate base should be radically increased, to do justice to investors. For example, if severe inflation shall occur, so that dollars shall shrink in purchasing power to a small fraction of the prewar level, no one but an enemy of capitalism would advocate that companies owning prewar properties should receive no more dollars for return than they were paid when they received their return in dollars of prewar value. *A fair return is just compensation for service rendered in money of the time when rendered.*"

In our own state we have tried, within the limits of what we deem to be proper, to speed up the processes of making rate adjustments.

In the determination of just and reasonable rates the Ohio law requires that due regard shall be given to the value of the property used and useful in rendering the service, and that such value shall be determined by ascertaining the cost of reproduction new of the property, and deducting therefrom the observed depreciation. In the application of this law prior to 1947, our commission pursued the laborious and time-consuming practice of making detailed inventories and appraisals of every company seeking a rate increase. Today, we are processing cases on a district-wide, system-wide, or even state-wide basis, not on an exchange basis. We no longer make valuations, but check those supplied by the companies. We are likewise encouraging the companies, where their records are known to be adequate, to abandon the use of detailed inventories, and, in lieu thereof, to file a valuation prepared by trending their book costs.



LEFT TO RIGHT: C. W. HANNA, Gould Storage Battery Corp.; J. A. CAMPBELL, Kellogg Switchboard & Supply Co.; FRANK ELDRIDGE, Gould Storage Battery; E. ARIANS, Phophetstown, Ill., and C. F. ELLIOT, Aurelia, Iowa.

This practice results in tremendous savings in time to the company, and to us, and in savings of money to the ratepayer. Further, once the price trend and surviving asset data have been developed, checked, and approved in one case, the saving in time in a subsequent case is very great, and the possibility of variation in reliability of the result is very small. Our engineering department has developed standards and "yardsticks" by which the values for a given account, or for the total property, may be investigated for reasonableness, whether based upon a priced inventory, or trended book costs. These "yardsticks" have been obtained from an analysis of telephone valuations in the files of the commission covering a long span of years. Any valuation submitted by a company which does not reasonably meet the tests applied, is scrutinized, and the justification for the variance, if any, is sought.

Sometime ago representatives of the Independent telephone companies in our state met with our commission, its chief engineer, and its chief accountant, and graphically described the plight of some of the smaller companies, and indicated, that they were in grave danger of being forced out of business because of their inability to finance their cases for needed increases in rates.

The chief engineer and chief accountant, thereafter, prepared a simple, one-page mimeographed form wherein the company was to submit data showing the type of system, number of subscribers, number of poles, estimated miles of wire, and a brief description of land, buildings and other property. From the data thus supplied our engineering department can prepare an estimated rate base, and the accounting department, after examination of the company's records, can obtain a statement of revenues and expenses. Based upon the combined reports of the two departments, the data for which having been obtained at little or no ex-

(Please turn to page 98)

W. A. DINSMORE, Reliable Electric Co.; STAN SHERMAN, American Crossarm & Conduit Co.; J. P. KRAFT and G. E. MORSE, both of Reliable Electric.

EMPLOYMENT RELATIONS

By J. H. AGEE
Chairman, USITA
Employment Relations Committee

IN HIS request to me as chairman of the Employment Relations Committee, our executive vice president asked us, in making our annual report, to devote some time to discussion of, "What is ahead on the labor relations front."

As a preface to a discussion of this subject, I think it is not inappropriate at this time, since the chairman of the committee is retiring after 10 years of service on this committee, to review briefly the most important tasks with which the committee has been concerned during the past decade, with apologies for repetition of matters contained in previous reports.

This committee was originally organized as a Wage-Hour Committee following the passage by Congress of the Fair Labor Standards Act, approved by the President on June 25, 1938.

An attempt had been made during the year 1937 and prior to the passage of the act in June, 1938, to obtain an exemption for all small telephone companies and for operators in the larger telephone exchanges. Arguments supporting the need and propriety of such an exemption were presented to members of labor committees in both the House and Senate, without affirmative result. Toward the end of the session an exemption was written into Section 13 of the act, exempting any employe engaged in any retail or service establishment, the greater part of whose selling or servicing is in intrastate commerce. To recall the strenuous attempts we made on behalf of the Independent telephone industry to obtain an interpretation from the administrator of the Wage-Hour Act which would include telephone exchanges as service establishments, is merely to recite ancient history with which you are all familiar.

Armed with exhaustive opinions, prepared by six of the most able firms of attorneys in this entire country, we spent days presenting our case, only to be met with contrary opinions on the part of the government attorneys, which were adopted by the administrator. The board of directors, after review of the entire matter, decided it would be unwise to attempt to get an opinion of the United States Supreme Court in the matter and decided it would be better to have the Wage-Hour Committee prepare and present to Congress an amendment which would exempt operators in exchanges of not more than 500 stations, from the provisions of the act.

An organization, comprised of representatives from every state in the country which has an Independent telephone association, was set up and for nearly eight months an intensive campaign among the members of Congress,

J. H. AGEE

and particularly the members of the Labor and Education Committee in the Senate and the Labor Committee in the House, was conducted. This campaign was thoroughly organized and conducted on the highest plane, free from any possibility of charges of lobbying or any illegal practices. The fight was a long one and a tough one but it was finally crowned with success by the adoption in the latter days of July, 1939, of Subsection 11 of Section 13 of the act, exempting any switchboard operator employed in a public telephone exchange which has less than 500 stations. This amendment was signed by the President on Aug. 9, 1939.

Organized labor has charged that the exemption is unfair to labor but this we strenuously deny. On the contrary, it has enabled the small telephone exchanges throughout the country to continue the employment of thousands of competent operators, most of whom are employed on a monthly rate basis, many of whom have been furnished a home by the telephone companies, and who, by reason of the exemption have been permitted to continue to enjoy their telephone home. The public has been protected not only in the continuation of telephone service, but from the payment of what otherwise would have been burdensome telephone rates.

The two years following the adoption of this amendment were busy years for your committee, in obtaining interpretations from the wage-hour administrator's office which would permit reasonable rules governing such matters as sleeping time, learners' rates, exemptions from overtime on the part of administrative, executive and professional employes, etc. This committee assisted in the defense of a number of important suits for overtime in various parts of the country.

During the period of the war, from 1941 to 1946, the legislative work of the committee was naturally much lighter. The War Labor Board had been set up to handle all matters involving wages. Regional boards were created at various cities. Under the provisions of the act creating the National Labor Relations Board, employes in most of the larger telephone companies had organized and the industry, as a whole, was faced with the problem of collective bargaining. The name of our committee had been changed to the Employment Relations Committee. While the larger companies, as a rule, were competently staffed with executive and legal departments fully capable of interpreting provisions of the law and rules of the National Labor Relations Board, nevertheless, your committee received hundreds of letters and telephone calls asking for our interpretation of the various matters under controversy. Such advice and counsel as we were able to furnish was always gladly and willingly given, but that particular phase of the work is one in which the chairman of the committee frankly admits he was unable to be of much help.

By the close of the war it became evident that there had probably been many unintentional or technical violations of overtime provisions of the Fair Labor Standards Act and that something just had to be done to obtain relief from the severe penalties of the act, particularly where violations had not been willful or where a company had complied with regulations issued

by the administrator which had afterward been overruled by the courts. This resulted in our preparing bills which were offered in the Senate by Senator Wherry and Senator Butler of Nebraska and in the House by Representative Gwynne of Iowa, in which we provided a statute of limitation for filing wage suits and also specified that if an employer had been complying with any regulations issued by the administrator of the Fair Labor Standards Act, that would be a complete defense in any action at law to recover overtime premiums or other penalties for alleged violations.

We wish to pay our respects to Representative Gwynne, who courageously defended the provisions of what became known as the Gwynne Bill. Due to his work the bill was passed by the House in the summer of 1946, was passed in substantially the same form in the Senate, was sent to conference committee, where an agreement was reached on the length of the statute of limitations, and returned to both the House and the Senate for final approval in the closing days of the session. Unfortunately, we were unable to secure final approval before Congress adjourned.

In the meantime, what is known as the portal-to-portal problem had appeared on the national horizon. The decision in the Mount Clemens Pottery Case, and the insistence of John L. Lewis' coal miners on portal-to-portal pay, presented the nation with a staggering bill for unpaid overtime, if something were not done quickly by Congress to clarify the situation.

Congressman Gwynne saw the opportunity to enlarge the provisions of his bill, adding to it the measures necessary to protect industry from unfair charges for overtime payments, with the result that Congress passed what is known as the Portal-to-Portal Act in May, 1947 and it was signed by the President on May 14.

Left to right: H. W. VAUGHAN, Chickamauga, Ga.; E. W. MILLER, W. A. McCRACKEN, J. M. CLEVELAND, all of Kellogg Switchboard & Supply Co.; E. P. BURNEY, Lafayette, Ga.; R. W. AUGUSTINE, R. B. MILES, W. D. BURKE, all of Kellogg, and JOHN A. and ROSS F. HARBAUGH, Sullivan, Ind.

In our opinion this is one of the most valuable pieces of corrective legislation which the American people have been able to obtain since passage of New Deal laws in the period from 1933 to 1937. Its value was recently emphasized after the decision of the United States Supreme Court in the Bay Ridge Operating Co. suit. That decision was announced on June 7, 1948. It appeared, at first blush, as though the employer who had been working a 48-hour week and had been paying time and one-half for the eight additional hours, regardless of whether they were worked on Sundays or holidays, was likely to be confronted with a tremendous bill for overtime payment, based on the United States Supreme Court's definition of regular pay.

For a few days we were uneasy and very much concerned, but quite promptly the administrator of the Wage-Hour Division called attention to the fact that, under the Portal-to-Portal Act, any company which had been following directions and interpretations issued by the Wage-Hour Division would be protected from any suits for overtime until July first. Later he extended the time to Sept. 15, 1948. This extension of time did not, in our opinion, provide legal protection and, at our suggestion, Mr. Bailey issued a caution and warning to all telephone companies to the effect that the only full protection from claims for overtime under the Bay Ridge decision would be to promptly adopt a 40-hour week, or, if that were not possible, then to at once recompute your regular rate of pay in accordance with the decision of the United States Supreme Court.

The real answer to this confusing problem is presented in a bill introduced by Representative Goodwin, of Massachusetts. Mr. Goodwin introduced this bill in Congress early in the spring of 1948. We endorsed it and urged its adoption. I hope at the coming session of Congress that the definition of regular pay can be specified as provided in the Goodwin Bill.

Since the last annual convention, our industry, and particularly that large segment consisting of several thousand small telephone companies, has been greatly concerned with the large number of bills introduced in Congress for the purpose of amending the Fair Labor Standards Act and substantially

Left to right: GEORGE HAMBURGER, Copperweld Steel Co.; A. H. HAWKINSON, Greenlee Tool Co.; A. R. TEIFELD, W. W. EGE, J. J. HEALY, all of Copperweld; MRS. H. L. HOUSLEY, Dallas, Tex.; D. T. JONES, Copperweld; MRS. FREE CALHOUN, San Antonio, Tex., and V. K. CURTIS, Copperweld.

increasing the minimum wage. Some 10 or 12 bills were introduced, all of which provided for an increase in minimum wages from 40 cents per hour to 75 cents per hour. Some of these bills provide for a graduated minimum up to $1.00 per hour. President Truman endorsed and urged 75 cents an hour as a minimum wage.

The association, naturally, opposed this increase in minimums, so far as the small companies were concerned. In addition to testimony presented before the sub-committees of the Labor Committee of the House and the Senate by Mr. Bailey and Mr. Crowley, secretary of the Minnesota Telephone Association, the reasons for opposing the increase were very ably presented before these subcommittees by representatives of the Iowa Independent Telephone Association.

Clyde McFarlin, president of the Montezuma (Iowa) Telephone Co., now a member of the Employment Relations Committee, appeared before the sub-committee of the House Labor Committee and forcefully presented an excellent argument in opposition to the proposed legislation. Secretary William Miller, of the Iowa Association, likewise presented an able and persuasive argument before the Senate sub-committee. Copies of both of these arguments, as well as those of Mr. Bailey and Mr. Crowley, have been circulated throughout the entire industry. You are undoubtedly familiar with them. The session closed without any affirmative action on this proposed legislation.

We cannot forecast just what will be done in this matter by the next Congress. Probably it will depend largely upon which one of the two major parties is victorious in the November election. In any event, it will require close attention and undoubtedly active work on the part of the national association, if the Independent industry, and particularly the smaller companies, and, I should emphasize, the public in general, are to be protected from unreasonable costs.

This report is too long and we have just now arrived at a discussion of the subject assigned to us. In this regard, I am going to quote from letters received by me from four members of the Employment Relations Committee who have discussed the subject so intelligently that I feel unable to add anything further.

I quote from the letter of Harlan W. Holmwood, as follows:

"I think it would be a mistake for any of us to forecast any degree of tranquillity or peace in labor relations in the immediate future. I think it is inevitable that each of us, whether his company be large or small, is going to be required to give more attention to labor costs and to labor relations in the future.

"Recently I have read suggestions that the Communications Workers of America might join forces with the Telephone Workers' Organizing Committee of the CIO to force a wage increase settlement upon the Bell System. Perhaps that objective will have been attained before our October convention. It appears also that there is a fairly substantial movement in the CWA toward permanent affiliation with the CIO or the AFofL. Probably any such combination, whether temporary or permanent, would bring collective bargaining to the desks of many of the smaller Independent companies who have not engaged in it thus far and probably it would change the character of the negotiations of those of us who have in the past bargained with the CWA alone or with wholly independent labor units.

"I think that each of us must be thoroughly realistic in any consideration of collective bargaining, wage increases, and labor relations. Confronted with the highest employment this country has ever known (even higher than the objective in Henry Wallace's book), and facing a probable higher demand for labor in defense industries, it seems to me that we are forced to compare our wages and our labor relations with those of other industries. We are going to have to determine what wages we must pay and what concessions we must offer, in relationship to other industries, to attract and hold enough workers to perform our job. It may end in a painful experience for some of the smaller companies, but the American public, which has countenanced and even encouraged increases in all other wages and prices, must learn to accept higher telephone rates also. So far as I can see, the most prominent feature in the labor relations front is higher telephone rates."

Left to right: W. J. CAVERLY, Leich Electric Co.; J. H. HAZLETT, Rio de Janeiro, Brazil; D. C. GIBSON, Leich Sales Corp., and J. V. ROBINSON, Acorn Insulated Wire Co.

E. H. Danner, of Sherman, Tex., writes an equally intelligent and interesting letter. I quote from his letter:

"With respect to the report of the Employment Relations Committee at the annual convention and the subject assigned, "What is Ahead on the Labor Relations Front," I have the following comments:

"(1) What is ahead on the labor relations front may be directly determined by what is going to happen on the international front. If we go into a heavy rearmament program or if the cold war develops into a shooting war, I can't help but believe that we will have restrictions and controls far more rigid than any we have experienced during the past war. If it becomes a shooting war, I would not be surprised to see labor directed from one job to another, based upon current military requirements. Based on the problems which we encountered during the last war, we should attempt to keep our house in order. We must be alert to the draft, adjusting our training program so that key personnel can be secured from draft exempt employes and explore the possibility of using handicapped workers.

"(2) If the armament program is speeded up, there will be increased competition for labor and a scarcity of skilled workmen, and with these conditions will come subsequent demands for increased wages. It is my personal opinion that the sincere attempt by some unions and management to hold the line of the third round of wage increases has been defeated. It is possible that after the election is over, a greater stability of our economic life may become apparent.

"(3) I expect to see the closed shop provision of the Taft-Hartley Act amended.

"(4) I also believe that Congress will either pass the Goodwin Bill or some other measure which will redefine "regular rate" of pay for overtime purposes. I note that Wage-Hour Administrator McComb has submitted a proposal to the McConnel sub-committee of the House Labor Committee that would restore the old premium pay rules.

"(5) With the continuing increase in the cost of living, I do not see how

an increase in the minimum wage rate can be avoided.

"To predict what our labor conditions may be during the next year can be done only if we know what will develop internationally. Assuming a normal rearmament program, I believe we should be alert to an increase in the minimum wage, minor revisions in the Taft-Hartley Law, increased competition for skilled labor, and the enactment of a law which will attempt to restore the old rules governing payment for overtime purposes."

I quote from a letter from Clyde McFarlin as follows:

"I feel we should continue our opposition to any increase in the minimum wage rate under the Fair Labor Standards Act. It has been consistently pointed out by economists that one reason the unemployment rate was so severe during the last depression was there was no decrease in unemployment rates of pay. In other words, because the wage rates were so sticky, employers were not able to meet the rates and they simply laid off their help. Neither labor nor government economists have learned that a job at a lower rate of pay is preferable to no job at all.

"We have an obligation, not only to our industry, but the nation as a whole, to keep fighting along this line. I do not believe we ought to have substandard wages or that our association should defend substandard wages. However, our national economy cannot continue to operate indefinitely on stilts, as it is now doing."

Mr. McFarlin has made the suggestion that legislative matters might better be handled by a legislative committee and wage-hour matters, by the Employment Relations Committee. While this matter has been discussed at various times in past years, the suggestion having again been proposed, it might well be considered by the board of directors.

Earle G. Bellamy, Knoxville, Iowa, writes, among other things, as follows:

"It is becoming increasingly apparent through the union organizations that matters affecting employer-employe relationships in one part of the country, soon become standard patterns for all other parts of the industry.

"It seems that if this is to be a general practice by the unions, it behooves us to apprise these patterns through our national association in order that we may be better able to prepare our programs for meeting these situations on an industry-wide basis.

"I am convinced that our industry should start now toward taking counter measures. Legislative work is essential *and* so is staff work which will be of tangible help to employers. The USITA office has a well qualified engineer who is engaged in radio matters. Why not a staff man whose job would be liaison work and coordination of labor relation matters. This is not a criticism of your committee's past activities and accomplishments. It is made on the basis of a realistic approach to a situation that has developed in the past few years. In my opinion, the job, if accorded adequate attention, is too big to expect the usual committee structure to perform. A staff man, as suggested, would be necessary."

Now as to my opinion of the labor outlook.

Rather recently I have discussed labor matters with several men whose work is along statistical lines and whose research requires them to visit the top executives of our largest industries and the heads of the labor unions. Opinion seems to prevail that organized labor is going to ask for another round of wage increases very shortly. Some of the labor leaders have been quoted as saying that if the Republican Party is victorious in the November election, labor will insist upon further increases in the period between election and the opening session of the 81st Congress.

Left to right: A. W. ANDERS, Tampa, Fla.; GEORGE PERRY, FRANK THILTGES, Jr., CHESTER RUTH, all of Cook Electric Co.; LEO RUBENDALL and H. W. MOONEN, both of Stromberg-Carlson Co.

That is a very short period, of course, in which to insist upon wage increases, and many contracts will not have expired during that period. On the other hand, many of the wage contracts signed this past spring, covering a two or three-year period, contain a provision which would permit the wage question to be reopened, if the bureau of labor statistics should indicate a substantial increase in the cost of living. I believe that a number of the Bell companies negotiated contracts of that character. It is altogether likely that industry generally will be faced with further demands for higher wages, although in many of the larger situations it is understood that these demands will emphasize mostly what are known as "fringe" increases, that is, sickness and hospital benefits, higher pensions, and similar employe advantages.

The Employment Relations Committee of our association has several unfinished tasks which may well engage its careful attention. The interpretative bulletins issued the past few years by the administrator of the Wage-Hour Division were cancelled this past spring, as you will remember. They have not yet been fully re-established. We made an appearance last fall in an attempt to broaden the definition of administrative, executive and professional employe. We sought to have the 20 per cent rule abrogated. So far we have been unsuccessful in this matter, but there is so much justification for the elimination of the 20 per cent rule in considering the equities of paying overtime to administrative and executive employes, that I think it should be strongly urged.

There are a number of telephone companies who would like to see a more liberal rule in the matter of learners' rates. We discussed this with Mr. McComb a few months ago and, while he appeared sympathetic, nothing has been done in the matter. This should be on the program of the committee. The question of sleeping time of night operators in exchanges with more than 500 stations should be clarified and, as I mentioned in the early part of my report, we should, in my opinion, support the Goodwin Bill and continue to present the need for a reasonable program in the matter of minimum wages.

As I retire as chairman of this committee, I want to express my personal thanks and appreciation to the officers and board of directors of the association for their fine cooperation. The Washington office, and particularly our efficient executive vice president, Clyde Bailey, has rendered yeoman service on behalf of our work. I want to thank the large group of folks constituting

telephone management and the hundreds of other telephone people throughout the country who have, during the past 10 years, responded so promptly to our calls for help. Of course, the members of my committee deserve the gratitude of our entire association for the time and work they have devoted to the cause.

The Independent industry is providing a necessary public service in a most noteworthy manner during these times of chaos and confusion in the world. Shortages of equipment and apparatus and the tremendous demand for telephone service have multiplied very greatly the problems confronting our industry, but shortages of physical plant seem to me less irritating to handle than the constant difficulties in employe-management relations which have been so tremendously emphasized in this country since the passage of the National Labor Relations Act and the Fair Labor Standards Act.

Eternal vigilance is the price of freedom.

CLEAR THE WAY FOR ENTERPRISE

By E. O. SHREVE
President
U. S. Chamber of Commerce

IT IS an old American custom to survey the bounty of the land at this time of the year and to swell with pride and gratitude for our good fortune. The good fortune that is America's shows up best at harvest time. This year the harvest is extraordinary and the good fortune of America is emphasized in contrast with scarcities and hardships in other lands.

We have reason to be grateful for abundance and to take pride in American achievements.

Yet I speak here in another vein.

I come to this great business center —into the midst of the abundant harvest—to talk about the role of American enterprise.

The key to the future is here in America—in the capacity of the farms, the factories and the mines of this fortunate land to produce in mighty volume for the home market and for export.

Upon the strength of America depends the freedom of western civilization in a struggle for survival with the police states of Russian Communism.

That test of survival is just starting. We live from crisis to crisis as relations between the United States and Russia reveal the conflicts between Stalin's slave state and the freedom of the west.

The time is past when the business man and the farmer could each mind his own business—and ignore the world beyond our shores.

The enterprising business man and the farmer run the dynamo that provides the economic power for United States leadership.

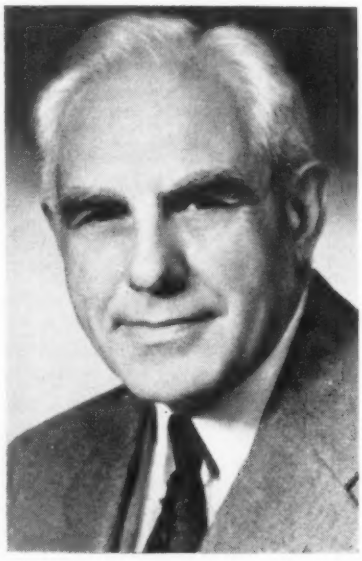
In the category of American enterprise I include all those sturdy elements that contribute to the enormous productive strength of this country—the farmer—the merchant—the industrialist—the millions who work for wages and salaries in productive jobs.

Every day the news brings some reminder of the historic role of American enterprise in the struggle between east and west.

The airlift that supplies Berlin, and frustrates Russian plans to rule Germany and the continent, is part of that economic power so dramatically portrayed in the harvest of this productive land.

This is the strength that stems the Red tide and holds aloft the light of freedom.

The steel in America's backbone and the food from these midwestern farms



E. O. SHREVE

count for more in the scales of history than the empty slogans of the left and the propaganda that pours from Moscow.

Call it capitalism, if you like—this American way of production. I call it American enterprise because it springs from the aspirations, the initiative and the freedom of the individual.

The enterprise system is our heritage from western Europe, but it has been shaped and developed on this continent into a characteristic American mould and it is moved by a characteristic American spirit.

The enterprise that is America—the freedom and opportunity of this land —now stands as the opposite pole of the Russian police state.

Those who cherish liberty, and prefer equality of opportunity to the monopoly control of the police state, look to the United States for inspiration and leadership.

Whether we want it or not, destiny has thrust the United States into this role and we cannot shirk the responsibility of leadership.

Nor can we turn back the clock of history to the time of our early youth as a nation when the United States was growing up behind the shield of British naval supremacy.

Today America is the shield of western freedom.

Upon this shield, in such outposts as Berlin, beats the aggressive push of Russian imperialism, feeling for weak spots.

The strength of this shield is the strength of American enterprise. That is the strength that can be seen so well in this midwest business capital.

Moscow knows the source of America's power and strikes at it through the devious strategy of Communist fifth columns.

The American people have awakened to this underhand strategy—to these Moscow fronts masquerading as political parties and groups dedicated to public causes.

Labor has become aware of the communist Trojan horse schemes and is purging some of its unions of the red conspirators who are more concerned with Russian foreign policy than with the interests of union members.

The Moscow puppets no longer can hide behind the smoke screens of domestic issues. Russian aggression forces the showdown and Moscow's puppets

are exposed when they have to choose between the foreign policy of the United States and that of Russia.

So it is on the stage of world events—the march of the cold war clarifies the great issues of the times.

One after another, the crises in relations between the United States and Russia bring into sharper focus the choice between the slavery of the police state and the freedom of the west.

In this struggle, the decisive factor again will be the productive power of American enterprise, as it was the decisive factor in two world wars.

Whether we want to or not, we are moved to look to the world beyond our shores. The siege of Berlin is bigger news than the business trend at home, or the record-breaking harvest.

The cold war is a harsh reality of the times and the carefree years of our early youth as a nation are gone.

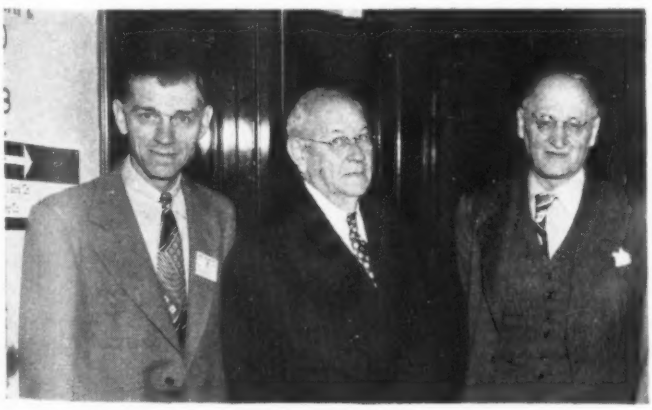
The heavy burdens of leadership and responsibility now rest upon the United States. We cannot turn aside and deny them. Our ways of freedom, and the fruits of our enterprise, are at stake in this struggle.

So I am here to talk for enterprise rather than to beat the drums for American achievements, or to celebrate the plenty of the harvest.

The plenty on the farm this year is an appetizer—a curtain raiser for the next act of the production drama. This country and western Europe need abundance on a larger scale.

Only a start has been made in the tasks of repairing the economic losses of World War II and strengthening the west in its struggle for freedom.

Left to right: L. M. BERRY, L. M. Berry & Co.; MRS. FRED HAWKER, Rochester, N. Y.; A. L. HART, Kansas City, Mo.; MRS. L. M. BERRY, and C. D. MANNING, Kellogg Switchboard & Supply Co.



This threesome are, left to right, A. J. STULTS, TELEPHONY; M. K. HOLMES, American Structural Products Co., and ROGER CASE, Transandean Associates, Inc.

Years of hard work—of saving and sacrifice—will be required to carry out these tasks of recovery and new growth.

In this work, American enterprise has a dynamic role of leadership in technology, research, capital investment, the removal of barriers to trade and economic development.

For this work, business enterprise wants freedom and equality of opportunity, incentives to take risks, encouragement from government, support from the American people, cooperation from labor unions and the understanding of those who guide the currents of public opinion.

In a national election campaign, it is timely to point out what enterprise needs. When a contest for votes is on, some politicians always single out business for attack and blame business men for everything from the weather to the fluctuations of prices.

The American people are wise to this attack on business. Business cannot be attacked as a special interest—as something apart from the rest of America.

Business enterprise is America. The welfare of all the American people depends upon business, and more and more people are beginning to understand the common welfare that comes from business.

The dividing line between the farmer and the business man—between big business and little business—between the employer and the employe—is too vague for definition.

The employe of today may be the employer tomorrow. Little business is business in the process of growing. And who will deny that the farmer, with his machines, his land and his risks, is a business man and enterpriser?

They all help make American enterprise what it is—the most productive economic system in the world.

This is the source of the strength that has saved western Europe—and that bulwarks western freedom against the communist conspiracy. Knowing this, the American people will rally to the support of business.

Business-baiting won't pay off in votes this time!

The strength of America is evident in the news—in the Berlin airlift—the Marshall Plan—the world demand for American-made goods and tools—in the leadership that has come to the United States.

The strength of America must be maintained and developed. In every way possible, enterprise should be encouraged.

Government policy in Washington in part is a hang-over from the prewar years of business-baiting. Those were the years of the red decade . . . when leftist smearing of business influenced the making of the laws and business-baiters got on the federal payroll.

It is time to remove this hostility to business enterprise from government and to give more encouragement to business.

By way of explaining what I mean, I shall set down in brief detail what should be done in government to encourage enterprise.

(Please turn to page 100)

MOBILE TELEPHONE SERVICE

By F. E. NORRIS
Chairman
USITA Radio Service Committee

SLIGHTLY more than two years have passed since mobile radio service became a reality and a factor in the common carrier communications scheme. Our industry as a whole can look with pride upon the progress that has thus far been made in understanding and applying this new and important medium to meet particular communication needs of the public. These particular service needs can practicably be met in no known manner other than by radio.

The list of Independent companies participating in rendering radio service is an ever growing one. These companies have provided, or have definite plans to provide, mobile service to all sorts of vehicles — trains, boats and motor cars. The veil of mystery which obscured the use of radio only a little more than two years ago has been entirely lifted for some and is rising for others. It seems safe to predict that before long "radio" will be as commonplace with telephone companies as carrier systems, teletypes, program arrangements and perhaps other techniques which we had to learn about in recent years.

Independent companies have, of course, and rightly so, been concerned about the economics of mobile service. Much has been said and written on this important phase of the problem. The effect of all of this has not been conducive to companies rushing ahead to provide mobile service. I am not prepared to tell you now that rendering mobile service is, or can be made, highly lucrative. I question, however, whether the service and engineering concepts which in the recent past have led to the conclusion that mobile service is a losing proposition, need govern the installation of all new systems. Concepts, naturally, affect economics. But, in questioning the prevailing concepts, criticism to none is intended, for it stands to reason that ideas must precede action on anything as new as mobile service. As we bump our heads against the realities of the situation, however, we should be alert to learning all we can about the subject and its problems.

Let us consider some of the more important factors in our industry's past thinking which have adversely affected the end financial results of mobile service. First and foremost, I believe, is the extent of the area that the mobile service system is to serve. The engineering, and sometimes commercial, approach generally has been to cover as great an area as possible within rather broad limitations. It would be decided, for example, that a station established primarily to serve town A should also serve towns B, C, D and others, even though at some distance in terms of the characteristics of the type radio used.

With this extended coverage pattern decided upon, the next question is what must be done to attain this coverage. The answer usually is "get the antenna high." Because the costs of antennas increase disproportionately as the height is increased over some certain amount, the tendency has been to look for a nearby high hill or location on which a relatively low antenna would do the job. To accomplish this, the purchase or lease of a piece of land and the erection of a small, inexpensive building becomes necessary. Then, in all likelihood a land pole and wire line has to be extended to the site. In some cases, the extension of power lines and road work may be necessary. By the time you get through with a project of this kind, quite a little cost is incurred and the maintenance problem has become complicated.

F. E. NORRIS

But this is not all that results from covering a large area. Because of the relatively lower power and the antenna height of the mobile unit transmitter, two or more auxiliary receivers may be necessary. This means not only the cost of extra equipment, but also of wire lines from the auxiliary receivers to the terminal equipment. If the auxiliary receivers are located in an area served by another company, a wire leasing arrangement may become necessary. All of these things naturally will eat heavily into the derived mobile service revenues. They have been important factors in the conclusion that mobile service is not particularly lucrative.

That being the case, why not consider the practicability of reducing or eliminating these costs by locating the equipment in the present telephone building and providing an antenna either on the tallest building in town, under suitable arrangements, or placing a tall wooden pole for the antenna on company property. This, of course, supposes that the coverage area will be reduced, but the knowledge of your own and nearby territory may lead to the conclusion that the reduced area still will permit your handling the vast majority of calls which might be offered.

I rather suspect that some such reasoning underlies the thinking of the taxicab people and of the "limited common carriers"—so-called—who today are rendering mobile service in the territories of so many telephone companies. We might ask at this point, how can so many of these limited common carriers see their way clear to invest in mobile systems for hire? Certainly they are not in business for their health.

Another factor which operates against the economy of mobile service by telephone companies is the selector. This is the device which permits signalling a particular one of a number of mobile units. The selectors generally used today cost about $300 per vehicle equipped. This figure is too high and I understand some of our equipment manufacturers are doing something about that. Until you can buy selectors at a reasonable price, you might consider eliminating them altogether — substituting a paging or code arrangement. This would appreciably reduce costs and yet would not, in all probability, prevent adding selectors if they are considered desirable at a later date.

There is still another factor which changes the mobile service economy now as compared to some months ago. Until recently, standard transmitters for vehicles were available only with

power output of from 25 to 60 watts. As experience was gained, it was found that mobile unit transmitters of 10 watts were practicable in those instances where the coverage area was not large. Such lower power units can now be purchased as standard equipment. The result of this development is appreciably lower-cost mobile units. The importance of this must of course be apparent, as any saving made in the cost of mobile equipment is multiplied by the number of units served.

There is, of course, always some danger of being misunderstood when one generalizes. All or part of the foregoing may apply in some cases and none in others. Generally, however, it would appear that Independent companies might well afford to think in terms of the simplified approach to the mobile service problem as outlined. On that basis, together with combining mobile service operations with the existing switchboard facilities and personnel, operating the service at a profit might well result.

All of this discussion might raise questions in your minds as to how the implied technical considerations are to be resolved. As I understand it, the manufacturers of radio equipment stand ready to lend advice and assistance of all kinds, just as the Independent equipment manufacturers assist in connection with such things as dial conversions.

You all know of the efforts which this association has put forth to obtain sufficient frequencies by which telephone companies may render adequate service to the public. This was the subject of a week-long hearing last December in Washington. The FCC has now issued a proposed order setting forth the frequencies which telephone companies, upon authorization, may use. It is with regret that I report that the commission has failed thus far to see the necessity of providing telephone companies with anywhere near enough channels to permit them to meet the public's needs.

Under the proposed allocation of frequencies, one channel in the 152 to 162-megacycle band is assigned to general common carrier mobile service for general and direct dispatch service, with a second channel available for these services provided adequate showing can be made, and provided further, that it has not in the meantime been assigned to someone else, such as to a limited common carrier. Thus, in place of the presently assigned three channels, telephone companies will have one and possibly two channels, if the proposed order becomes final.

This assignment may prove adequate for companies operating in the smaller communities, but is woefully inadequate for the larger communities.

Left to right: C. D. SMITH and D. J. NEALE, both of Neale Construction Co., Inc.; MRS. B. ELLEN NEALE and JACK ROBINSON, both of Cable Spinning Equipment Co.

The commission has given interested parties an opportunity to present oral argument with respect to the proposed order. Your USITA Radio Service Committee has assisted the association folks in Washington and association counsel in preparing the statement to be given in behalf of Independent telephone companies. The hearing is in progress this week.

You may like to know that more than 100 interested parties have filed notice of intent to appear and be heard at the hearing. This, more than anything I might say, indicates the value being placed upon radio frequencies and upon mobile service. May we hope that our argument will be persuasive with the commission.

There is a subject closely related to "radio" which is developing interest in telephone companies and which you might like to hear about. Telephone companies are not interested in television as such, but are interested, I believe, in certain of the facilities used for carrying television programs. Television programs on a network basis are now available from two separate networks. One of these is in the east connecting Boston, New York, Philadelphia, Baltimore, Washington and Richmond. The other connects Buffalo, Cleveland, Detroit, Toledo, Chicago, Milwaukee and St. Louis. It is the Bell System's expectation to connect these two networks together into one network before the end of this year.

H. W. CAIN (left) and H. R. VAN DEVENTER of Telephone Answering & Recording Corp.

The popularity of television is growing at a tremendous rate, if a report of the production of television receivers may be used as a criterion. One report I've seen, for example, predicts over 13,000,000 sets in use in the United States by 1952. As networks are extended, programs will be improved, and the popularity will further increase.

In these early stages, network programs probably will be available only in large cities, but, with the passing of time, they will spread out to the smaller cities. Enlightened opinion seems to hold that the day is pretty far off, however, before network programs will be broadcast in the smaller communities of say a few thousand or less.

Linking cities together may be either by coaxial cables or micro-wave links. The relative merits of these two methods is receiving much consideration. Only time will tell how the scales will tip, but micro-wave links for television seem to hold much promise—either as a substitute for, or a supplement to, coaxial cables.

Now what might this mean to Inde-

(Please turn to page 102)

A Selected List of Telephone Books

For Telephone Employes and Libraries

• ***How to Build and Repair a Farm Telephone Line*, published by Telephony Publishing Corp.**

Eight-page booklet, unbound, 25 cents per copy to non-subscribers of TELEPHONY; special prices available to subscribers and to anyone ordering 25 or more booklets. This booklet, well-illustrated with photographs and diagrams, tells what was done to place a run-down farm line in good condition to furnish excellent service. The text describes how to attach wire to an insulator, how to attach brackets, how to set a pole, how to string wire, how to make a splice, how to protect telephone line from power line hum, how tree branches touching wires hamper transmission, how to connect drop wire to line wire, how to attach drop wire to house, how to connect house line to telephone, and how to connect the ground rod. The materials needed for a farm line are also listed.

• ***Rural Telephone Trouble*, published by Telephony Publishing Corp.**

Four-page reprint of an article published in TELEPHONY giving 33 magneto telephone and line troubles most commonly encountered, with suggestions as to the most likely cause of each—whether in the telephone set, the protector, the line, or the central office. Cost is 25 cents per copy to non-subscribers of TELEPHONY; special prices available to subscribers and to anyone ordering 25 or more reprints.

• ***ABC of the Telephone*, published by Telephony Publishing Corp., 84 pages—8½ ins. x 11 ins. Prices: One copy, $1.50; two to 25 copies, $1.35 each; 26 to 50 copies, $1.20 each; 50 or more copies, each.....$1.05**

Reprint of first 21 installments of article by Frank E. Lee running currently in TELEPHONY. Covers fundamental information concerning electrical circuits, telephone transmitters and receivers, induction coils, generators, ringers, relays, line protection, dials, automatic switching, drop wire installation. Particularly beneficial to beginners.

• ***Handbook for Telephone Managers and Engineers—Vol. I.* Published by Automatic Electric Co., 1033 W. Van Buren St., Chicago, Ill. 294 pages (illustrated) $3.00**

Deals primarily with design, construction and maintenance of outside plant and also includes introductory sections containing mathematical and engineering data, formulas, tables and other material of a general nature.

• ***Telephone Handbook of Standard Outside Plant Construction Methods—Book No. 1.* Published by Kellogg Switchboard & Supply Co., 6650 S. Cicero Ave., Chicago, Ill. 365 pages (illustrated).....$3.50**

Covers standard outside plant construction practices, pertaining to pole line and long span construction. Seven sections are subdivided into more than 100 parts. Subjects are cross-indexed.

• ***Fundamentals of Telephony*, by Arthur A. Albert (1943) 366 pages $3.75**

This elementary book, intended for beginning students and for telephone workers, is devoted exclusively to telephone communication. The first four chapters present briefly the principles of electricity and acoustics upon which telephone practices are based. The book then considers the following subjects: Telephone transmitters, receivers, telephone sets and circuits, telephone lines, manual telephone systems, dial telephone systems, loading, telephone measurements, noise and cross-talk, and repeaters and carriers.

• ***Electrical Fundamentals of Communication*, by Arthur L. Albert (1942); 554 pages.....$4.00**

This book deals with fundamentals of electricity as applied to communication, including telegraphy, telephony, and radio. Contains basic electric circuits and phenomena using illustrations, terminology and problems from communication industry standpoint. Contains tables and 359 excellent drawings; is non-mathematical and clearly written for communication people having little or no college training. Especially suited for use in telephone training courses for new employes. Also valuable for employes who wish to extend their knowledge of electricity. A summary as well as review questions and problems given at end of each chapter.

• ***Soldering for Workshop, Farm and Home*, by John Bonert (1941); 111 pages, 28 illustrations.....$1.25**

Valuable soldering information for telephone plant men, particularly apprentices, is presented in this book written by a telephone man with years of practical experience. The book discusses soft soldering, fluxes, tinning, soldering coppers, wire splices, soldering on lead, closing seams in a split cable sleeve, soldering and sweating with a torch, joints, hard soldering or brazing, construction of a soldering copper holder and pad, etc. No scientific terms or complications have been used in the book, which is intended to help the beginner or to refresh the memory of an experienced worker.

• ***Electrical Communication*, by Arthur L. Albert (1940); 534 pages (second edition).....$5.00**

Presentation of electrical theory of communication, including vacuum tubes, networks, filters, and discussion of entire industry. Various subjects considered as related to one another in modern communication systems. Designed as a college textbook and reference book for those having technical training. Others will find much of value in it, as use of mathematics has been limited but not at a sacrifice of engineering exactness.

• ***Transmission Networks and Wave Filters*, by T. E. Shea (1929); 470 pages.....$6.50**

A specialized book which deals with principles of transmission networks, electric wave filters, and composition of transient waves. It is intended for student engineers or graduate engineers.

• ***Radio Operating Questions and Answers*, by Nilson and Hornung, 400 pages.....$3.25**

This is a technical review book on radio communication for prospective and experienced radio operators of all classes, especially those about to take FCC license examinations. It condenses in question and answer form theory, apparatus, circuits, operation, laws, regulations, etc.—all the information covered in the new form of government examinations. Pocket size, flexible.

• ***Fundamental Electronics and Vacuum Tubes*, by Arthur L. Albert (1938) 422 pages.....$6.00**

The increasing use of vacuum tubes in telephone work makes this non-mathematical book of practical value to persons in engineering and operating branches of telephony. The book discusses the principles of electronics and the theory of vacuum tubes, photocells and copperoxide varistors in telephone circuits and radio. It delves into the theory of these devices and the design and operation of circuits in which they are used.

• ***Communication Engineering*, by W. L. Everitt (1937); 727 pages (second edition).....$5.50**

Book designed for engineers and those with technical training; gives fundamental principles of telephone, telegraph and radio communication without going back to the beginnings of the entire electrical engineering field. Transmission networks and circuits, involving coupled circuits, impedance transformations, equalizers and bridge circuits are treated. Inductive coordination is discussed with the latest theories for minimizing interference. Discussion is given of other links in the circuits which make possible radiotelephony or carrier-current systems, including vacuum tube detectors and amplifiers. Mathematical ideas, beyond calculus, are introduced just before they can be applied.

• ***Inductive Coordination of Electric Power and Communication Circuits*, by Laurence Jay Corbett (1936); 161 pages $1.75**

This excellent book discusses the nature of power transmission and of communication transmission, the effect of magnetic and electric induction and various influence factors. Susceptiveness and coupling factors, effects of conductor arrangements, transpositions in power and communication circuits and their coordination, power system wave shape, control of residual voltages and currents and many other phases are discussed. This book should contribute to a fuller understanding by power and communication engineers of each other's problems.

• ***Telephone Theory and Practice*, by Kempster B. Miller (1933); 1414 pages.....$16.50**

A set of three volumes, "Theory and Elements" (1930, 468 pages, $5.50); "Manual Switching and Substation Equipment" (1933, 439 pages, $5.50); and "Automatic Switching and Auxiliary Equipment" (1933, 494 pages, $5.50). Volumes may be purchased separately or as a set. This series replaces "American Telephone Practice" by the same author, published early in the century. The set comprises an excellent source of accurate information of entire subject of telephony.

• ***Elements of Utility Rate Determination*, by J. M. Bryant and R. R. Herrmann (1940); 464 pages.....$5.00**

Based on tested and workable methods, this book discusses factors, methods and problems of evaluating public utility property and service for rate-making. The essentials of valuation, depreciation, expense, return, etc., as factors in establishing proper rates for various utility rates are given. Citations presented from background and key cases decided by commissions and courts.

TELEPHONY PUBLISHING CORP.

608 So. Dearborn St. **Telephone: Wabash 2435** **Chicago 5, Ill.**

COMMUNICATIONS IN CIVIL DEFENSE

By H. J. SCHROLL
Communications Advisor
Civil Defense Planning

IT IS a privilege to join with you here today and briefly discuss the "Role of Communications in the Civil Defense Program."

Based on several months' study of communications requirements for civil defense and a recent visit to England to discuss their planning, plus experiences in the past war, I assure you communications have a very important role in civil defense.

As an associate in the telephone business, this is a particularly pleasant occasion to see so many friends and renew acquaintances.

I also wish to take this opportunity to convey the greetings of Russell J. Hopley, president, Northwestern Bell Telephone Co., who is the director of the Office of Civil Defense Planning.

This office was created by Secretary of Defense Forrestal in recognition of the fact that at a time when the National Military Establishment was being strengthened by manpower and equipment needed for security, no provision had been made for the defense role of civilians should this country ever be attacked.

Since March, a small group of us have been seeking to formulate a sound, effective, and workable program of civil defense for the nation that could be quickly expanded in the event of national emergency. In addition, we have been charged with the development of a plan for a permanent federal civil defense agency, to initiate interim measures which may seem necessary or appropriate, and draft any legislation required for the civil defense program.

The plans developed are based upon world-wide experiences during World War II and adapted to the needs of this country and its territories and possessions. The final recommendations which will soon be made known to the American people will incorporate the pooled thought of leaders drawn from industry, science, government, the military establishment and allied fields.

In order that you may judge the importance of communications and the extensive demand for various categories of facilities and services created by the peculiar and varied exigencies of civil defense, I would like to take a few minutes to tell you something about the need for civil defense.

The necessity for civil defense should be axiomatic. Even the most casual reader of newspaper headlines must be convinced of the necessity for devising security measures in the interest of complete national defense.

Science has so reduced the elements of time and space that every spot on the globe is within range of some weapon; hence, strategic areas become potential targets and all civilians become potential victims. War becomes personalized, even for those who do not bear arms.

Civil defense is not preventive—it does not actively stem, hinder or prevent the attack. It does not shoot back.

H. J. SCHROLL

It is not punitive—it is designed to be remedial — to anticipate the attack, minimize the effect, reduce casualties, save lives, render aid and assistance, check the development of secondary damage, restore the essential facilities; in effect, cushion the blow and aid recovery therefrom.

Civil defense goes into action at the moment of danger with trained civilians employing proven techniques to minimize the effects of an attack and to restore insofar as practicable the normal facilities.

Civil defense operations will of necessity be centered around communities, the utilization of volunteers and the basic principle of self-help, neighborly and community assistance. Such an organization of civilians led by civilians thus releases the armed forces to carry out military missions.

The community is the basic unit of protection against common danger and minor catastrophes. Statewise, and nationally, those locally organized protective and emergency welfare services are supported by services designed to meet the demands of disaster that overwhelm facilities. Under a carefully organized civil defense system, the nation would, therefore, further benefit in time of peacetime disaster.

All of you are familiar with such general services as police and fire services. The civil defense program of course includes these services and also plans on a large scale for rescue, emergency feeding, shelter, clothing, first aid, evacuation, medical services, hospitalization, essential utility repair and restoration, sanitation, control of panic, mortuary services, and the like. Many relatively new services, such as radiological defense, also are incorporated.

The possibility of successful attack must be included in all defense planning. It is essential that we be prepared to deal effectively with devastating results of an enemy attack. Certainly, organizing to minimize the effects of atomic or other weapons is feasible.

In envisioning the operations of civil defense we must be realistic and determine requirements on the basis of war. For example, we should anticipate situations many times larger than the disaster which occurred in Texas City.

In our generation wars have been fought far away from home shores. There has been a fortunate time element which enabled us to train forces and produce weapons of combat.

If there is to be a next time, we must assume that the first strike may come without warning and may be a multiple type of attack.

Should the attack be atomic, on a large populated area the probable fatal and non-fatal casualties of a single atomic bomb would be in the order of 100,000, based on what happened at Hiroshima and Nagasaki. Approximately 20,000 persons would be killed outright; 20,000 additional dying within the first week following detonation. These estimates include casualties resulting from ionizing radiations, shock, burns, flying debris, structural collapse, and fire.

As a matter of fact, our studies have disclosed that with more adequate prep-

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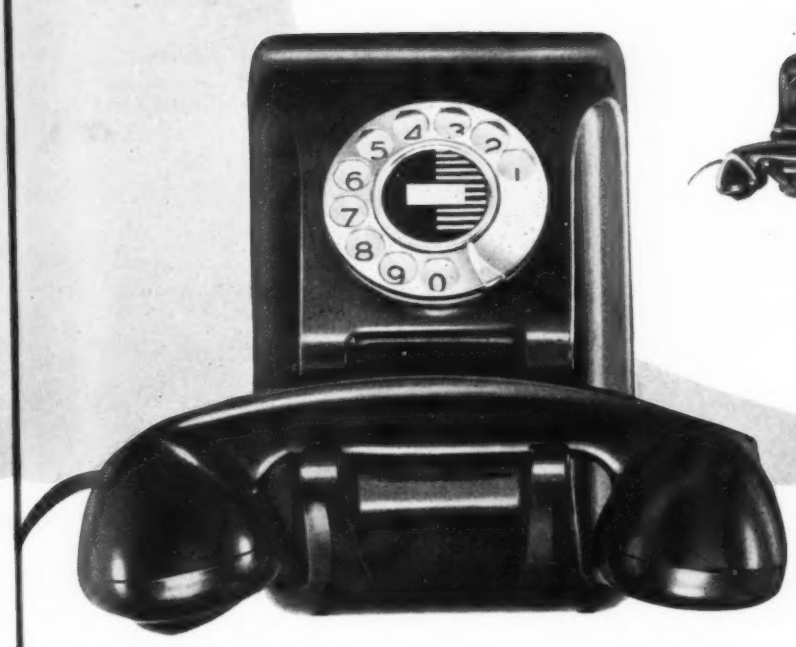

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aration for civil defense, thousands of lives might have been saved and property loss would have been materially less in all the countries that suffered heavy bombings in World War II.

In each area or community the communications needs will vary depending on geography, size, strategic importance and the likely extent of civil defense operations.

Adequate and dependable communications are vital to the effectiveness and success of the organized operations of Civil Defense. They are the nerve system of civil defense.

In the event of an enemy attack against the United States, the task of operating a civil defense system with all the many phases of air raid warning, of panic control, of rescue, of aid, of restoring facilities, would be almost insuperable.

Federal, state and local air raid warning systems are imperative so that civil authorities and the public in the path of approaching enemy aircraft may be alerted as to the imminence of attack, time when the attack may be expected and, if possible, its potential effectiveness. These systems will require the extensive use of communications services including the provision of private line networks.

The establishment of civil defense state and local control centers is contemplated. They will be essentially centers of communications for the receipt and transmittal of air raid warning and other information, for the initiation of action, direction and control of civil defense operations during an emergency. Communications will be vital to facilitate quick appraisal of the extent of destruction, the type of attack—whether high explosive, atomic, chemical or other type; also for communicating with other points in order that organized assistance may be promptly dispatched, directed and control instituted.

It is important that primary and also alternate control centers, when provided, be located with due regard to the ready availability of wire communications facilities, security and dependability of services from the viewpoint of alternate routing of connecting lines and with capabilities of rapid expansion of the services.

Local telephone company representatives can be helpful to civil defense authorities responsible for the selection of locations of control centers and the determination of the communications arrangements, and it has been proposed that their services be solicited.

Effective police and fire communications systems will be essential.

Mobile radio-telephone and walkie-talkie facilities must be anticipated for ground reconnaissance following atomic or gas attack and for search and rescue work.

Adequate telephone facilities are the foundation of good police and fire department communications in addition to radio-telephone facilities which may be provided. It is proposed that a traffic study be made jointly with the local telephone company to insure that proper operating procedures are adhered to, and that sufficient spare capacity exists in the equipment to permit the installation of additional telephones and trunk lines where needed in anticipation of sudden large increase in usage.

The extensive and dependable communications required for civil defense will necessitate to a large extent the provision of facilities and services by the common carrier communications companies as well as the use of the existing communications facilities of the police, fire, and other services.

It is proposed that, insofar as practicable, standard telephone and other equipment be used to avoid delays in procurement and installation of equipment, and the need of special training in operational procedures, and to obviate problems in the maintenance of facilities.

Definite arrangements with telephone companies will be necessary for the handling of emergency civil defense calls and to secure uninterrupted availability of telephone services.

The best defense system that could be devised would fail if its communications system did not function and particularly, if it suffered major failures in the time of extreme emergency.

The American communications system is exceedingly efficient. There is every indication that it has the capabilities of adequately meeting the communications requirements for civil defense. The nation-wide networks, the highly integrated, coordinated and standardized equipment and operational procedures of the common carriers, and the coordination of radio broadcasting services through national associations of broadcasters are a civil and a military asset.

In wartime, however, communications may be severely damaged in areas subjected to heavy attack. Therefore, every contingency must be provided for and sound plans developed so that in such an emergency communications in some form will be available.

Perhaps I may be anticipating your thoughts by stating that in the event heavy damage has been inflicted on communications in a community, the alternate geographic routes and general diversity of the facilities, flexibility of the networks inherent in the design and construction of common carrier communications systems, give some assurance of portions of the communications facilities remaining in service.

Emergency communications may also be rapidly established through the use of mobile radio-telephone facilities.

The planned availability of emergency repair forces and supplies within the cities and adjacent cities, plus the traditional resourcefulness and ingenuity of the industry, should contribute effectively in the maintenance of communications services.

However, the means of assuring the availability of communications under various emergency situations is a most important one when considered in the light of a possible devastating attack and the resulting wide-spread destruction of facilities. This is a matter which should concern the communications companies and receive their careful consideration.

It might interest you to know that plans contemplate utilizing radio broadcasting stations as an important medium to inform the public as to its responsibility in civil defense. In the event of an emergency, the broadcasting of appropriate warning and other information would contribute immeasurably to the maintenance of morale and prevention of panic. However, the use of broadcasting facilities will depend upon resolving the question of the extent and conditions under which radio silence may be imposed for military security purposes.

The amateurs' record during peacetime disaster indicates they are resourceful, adept at improvisation and possess a high sense of community service. Under a carefully organized plan, they should be capable of making an important contribution to civil defense and it is proposed to consider their utilization in providing supplementary emergency communications especially during a post-raid period.

We believe the proposed civil defense program, now nearing completion, is a good one. It includes many important services, but none seem to me more important than the communications services. They are vital to civil defense. Therefore, heavy reliance rests upon the communications companies, who must in the main furnish such services. I am sure that members of the United States Independent Telephone Association will be fully equal to their responsibilities.

PREVENTIVE MAINTENANCE

By DANIEL SEITZ
Cable Superintendent
York Telephone & Telegraph Co.

EVERY telephone plant, regardless of how well it is constructed, will inevitably require maintenance which may be divided into two parts: (1) Routine inspection and testing, replacing worn equipment, poles, etc. and (2) preventive which means making changes and improvements designed to prevent the complete failure of any part of the plant.

The costs and benefits of routine maintenance are readily determined, while preventive maintenance costs will be evident but the value of many of the benefits must be estimated, such as, less costs for repair force personnel, uninterrupted service for the subscriber, good will, etc. Speaking of costs, one truth that inflation has not affected is that "an ounce of prevention is worth a pound of cure." Perhaps inflation makes prevention even more important than ever before.

Now, let us take up some specific cases where preventive maintenance may be applied. We will start out on a rural line at the subscriber's installation, then passing on to the line, aerial cable, underground plant and finally the central office. In areas where lightning is prevalent or electric power is present, special precautions should be taken to guard against their hazards.

With the aid of the accompanying photographs we will point out the faults and remedies as we go along.

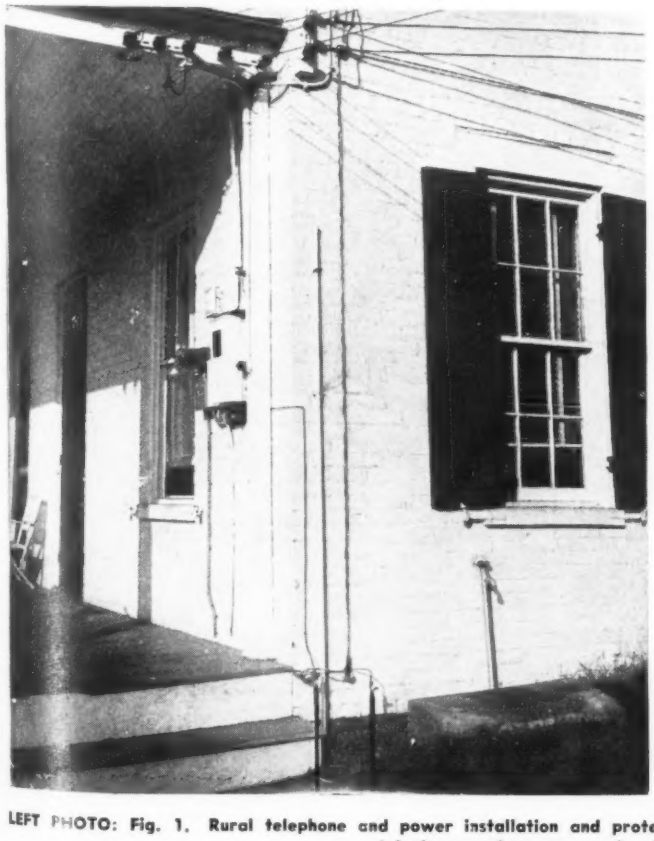
Fig. 1 shows an illustration with the telephone loop and power service in close proximity. The most serious fault here is that the ground rods are too close to each other so that when a charge of lightning on the power line is carried to this ground, part of it, together with a portion of the current from the power line, is carried across to the telephone ground rod and thus to the telephone equipment. It is true that such charges decrease rather rapidly as the distance from the ground rod is increased. However, the separation between power and telephone grounds should be at least 10 ft., preferably more, if possible on opposite sides of the building.

Fig. 2 indicates a wide separation between power and telephone facilities which makes it an ideal installation. Although this station is located along an open wire line with high tension power lines paralleling it, trouble records prove that almost no interruption of service was experienced by this subscriber over a long period of time.

Fig. 3 shows part of a demonstration set up for the purpose of teaching installers the right and wrong way to perform rural installations. Here we have an isolated water system with the power circuit grounded to the water pipe which is common practice with many power companies. It is often more convenient to connect the telephone protector ground to the same water pipe together with the power ground rather than to drive a ground rod for the telephone protector alone. Many isolated water systems will be found to have high resistance connections to earth, even though the pipe extends considerable distance down into the water in the well. Therefore, it is safer to provide a good driven ground for the telephone protector. The illustration shows the telephone protector ground disconnected from the water pipe and a ground wire connect from the protector to a driven ground as it should be for this type of installation.

At power sub-stations such as is shown in *Fig. 4*, many interruptions to telephone service may be avoided by placing regular fuse type station protectors with normal length fuses in each circuit but without the usual ground. If we connect the telephone protector ground to the power sub-station ground, or even to a ground rod driven near the sub-station ground, we are inviting trouble due to lightning and power surges that occur on these grounds during storms and power failures.

(Please turn to page 52)



LEFT PHOTO: Fig. 1. Rural telephone and power installation and protection grounds with insufficient separation. RIGHT PHOTO: Fig. 2. Rural telephone and power service installation with proper grounding.

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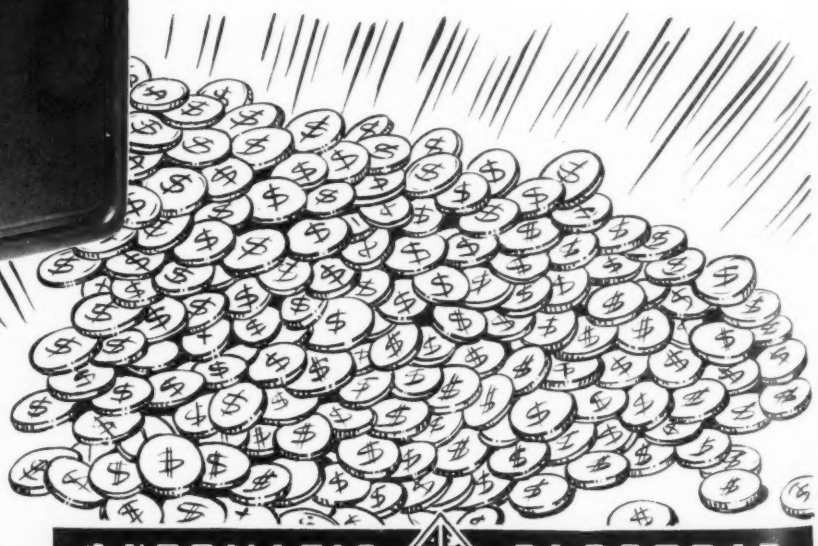
*Although paystations constitute only 1.5 percent of the Bell System's total stations, this source of income produced 7 percent of the company's entire 1947 receipts.



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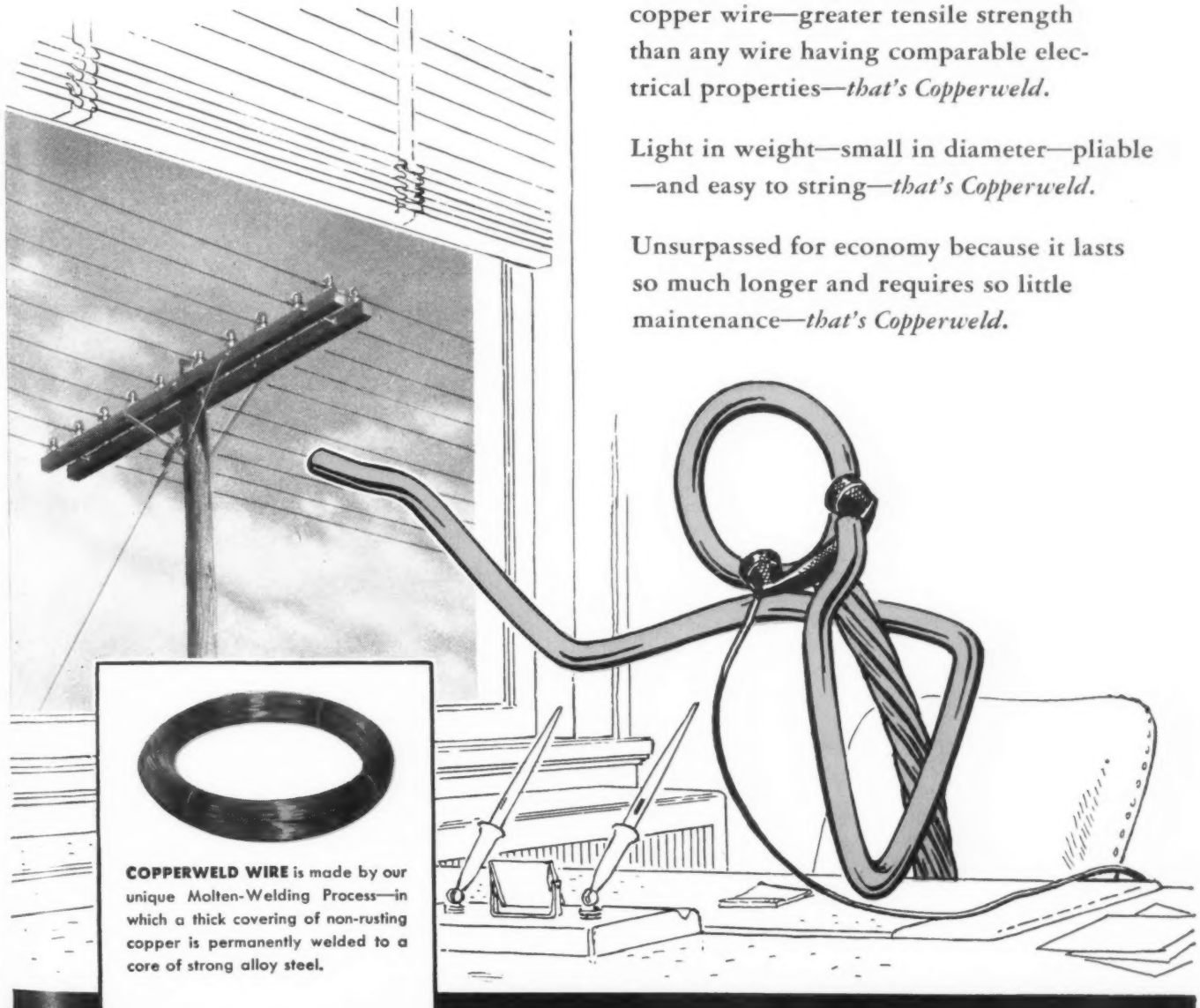
Unsurpassed for economy because it lasts so much longer and requires so little maintenance—*that's Copperweld.*



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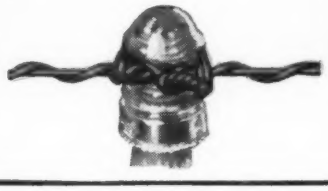

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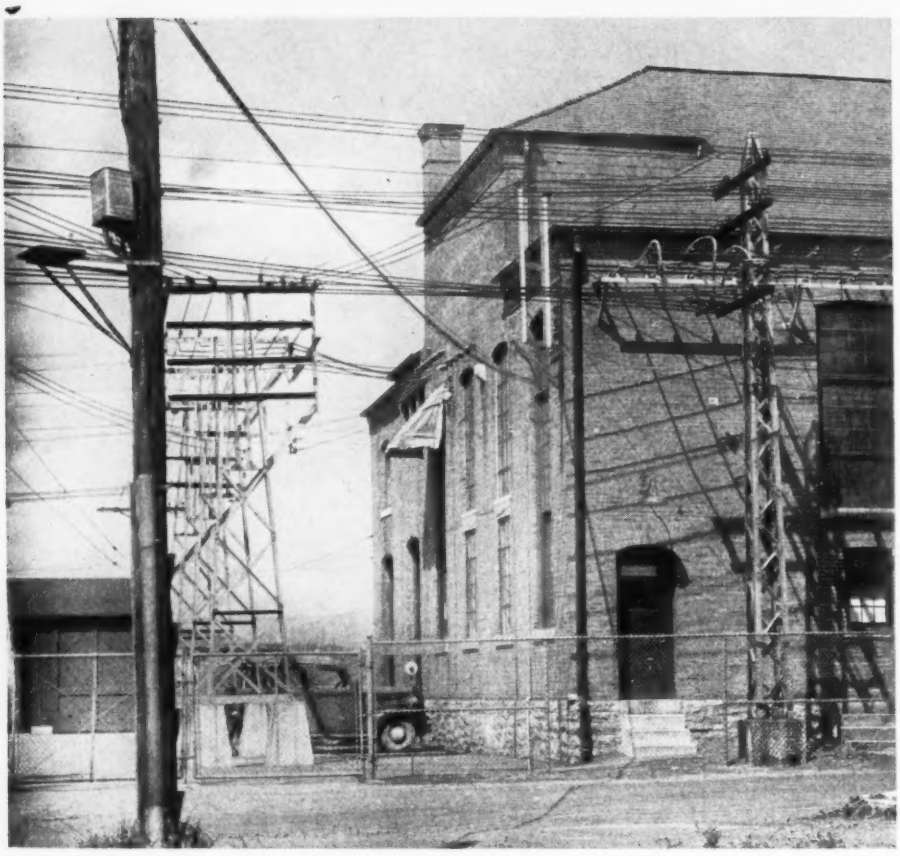


Fig. 4. Telephone service entrance to power sub-station.

Telephone and power wiring inside the subscribers' premises should have good clearance. Many of the power and lightning installations are made long after the telephone service was established and the electrician who did the power wiring may not have been too respectful of telephone wires. We have no alternative but to move the telephone wiring to a safe location. We should teach the subscriber that it is extremely hazardous to place telephone equipment or wiring close to or on any electric appliances. "One stitch in time, saves nine."

Placing static protectors along open wire leads, illustrated in *Fig. 5*, is recommended by many engineers as a preventive measure. Let me point out that no matter how efficient the protector itself is, unless a good ground is connected to it, it will be worthless. I should like to stress the fact that wherever a ground is at all necessary it should by all means be one of low resistance, regardless of the cost, because a high resistance ground is absolutely worthless. If in doubt, there is only one way to be sure and that is to measure them with any type of approved ground resistance measuring instrument. This illustration shows a five-pair protector that has seen service and its condition is evidence that it was defective. The cost of this arrester and the labor placing it was preventive maintenance. Replacing parts and maintaining them should be considered as routine maintenance.

Casual inspection of open wire lines does not always reveal the causes for having an undue amount of open fuses, instrument troubles, cable pair and equipment failures to which these lines are connected *(Fig. 6)*. I am sure this picture will illustrate the point. The power line is a 66 kv transmission line with a 25-ft. clearance over the telephone line. Originally the telephone line was split by the power pole with three No. 104 copper wires on each side. There is a ground wire as shown by the broken white line. It does not make contact with the guys supporting the power pole.

During a severe lightning storm, a charge following this wire to ground was sufficiently severe to cause part of the charge to jump to the three telephone wires adjacent to the ground wire, with the result that they were severed by the charge of lightning plus the current it conducted down the ground wire. Needless to say that much damage was done to the telephone equipment. A ground resistance test of the power company ground showed it to be of very high resistance which was a factor in causing the charge to seek a path to ground by way of the telephone circuits.

How many and how severe were the charges following down that power company ground jumping onto the telephone wires, blowing fuses and causing other failures is anyone's guess. However, we are sure that proper preventive maintenance would have called for making changes as shown by this print.

The close-up shown in *Fig. 7* also indicates in greater detail the danger area showing how proper clearance was provided between ground wires and

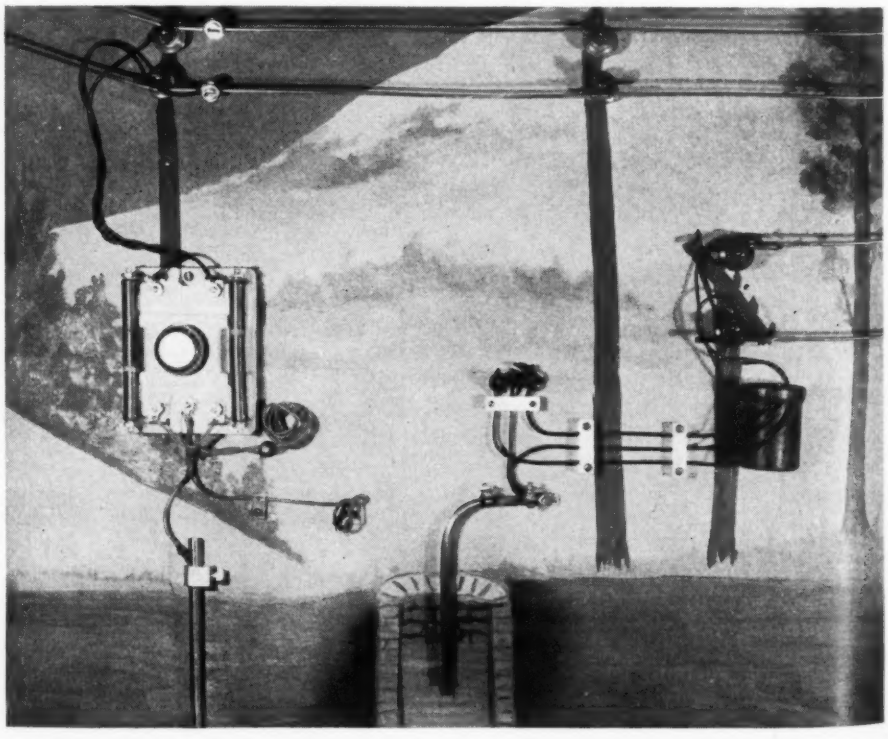


Fig. 3. Schematic arrangement of a rural telephone and power installation with power ground connected to the isolated water system and telephone protection ground connected to ground rod.

telephone circuits. Preventive maintenance of the open wire line also includes proper tree trimming, pulling slack, effective guying and many other operations, none of which should be neglected—remembering that a little preventive maintenance work today will save a lot of unnecessary work later.

Now, we come to the cable terminal to which the open wires are connected. If it is a fuse type, the fuses may be the source of much unnecessary interruption of service and expense due to lightning passing through them on the way to ground and blowing them. If we connect a 20 or 22-gauge bridle wire from the open wire to a protector unit equipped with discharge blocks that will ground solid when the telephone line comes in accidental contact with a power line, causing the small gauge bridle wire to burn open, it will eliminate the need for fuses at this point. The ground wire from the protector unit should be connected to the strand and sheath on aerial cables. Never use this method for protection at the subscriber's station. It might result in a costly fire. However, on a pole this is not hazardous. Preventive maintenance is good insurance against later trouble.

Aerial cable presents many opportunities for practicing preventive maintenance. If it is suspended in

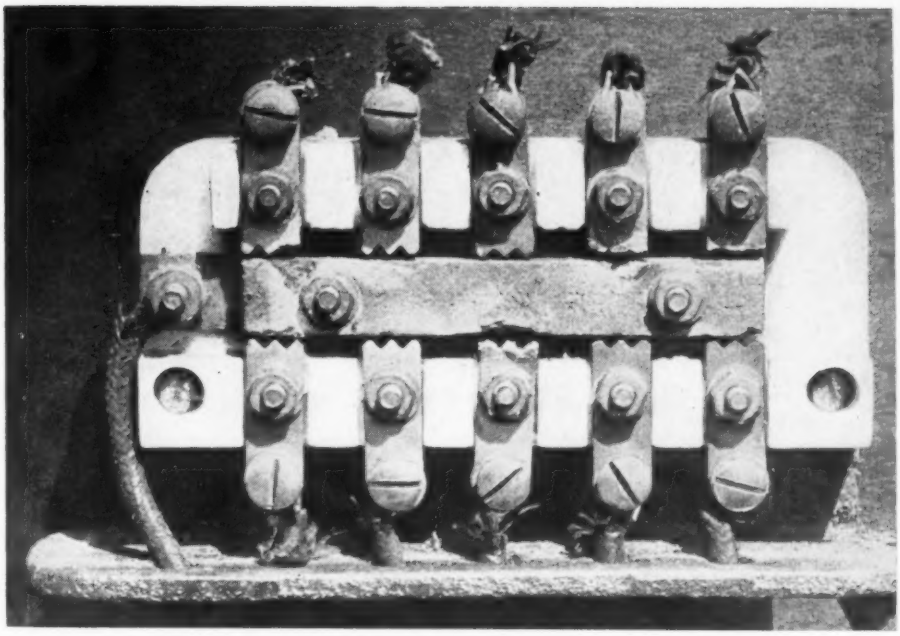
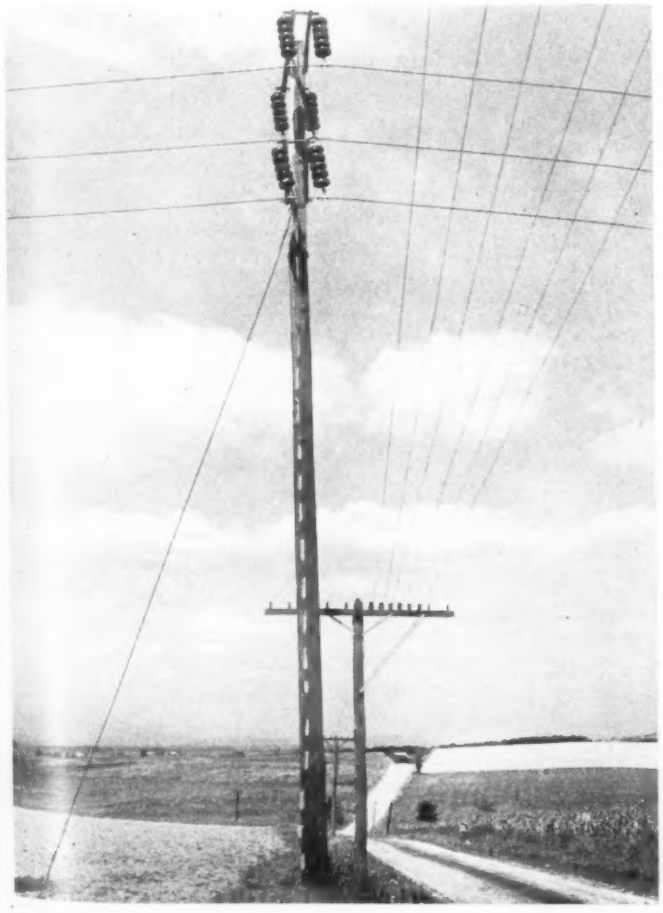


Fig. 5. Static protector for open wire line protection.

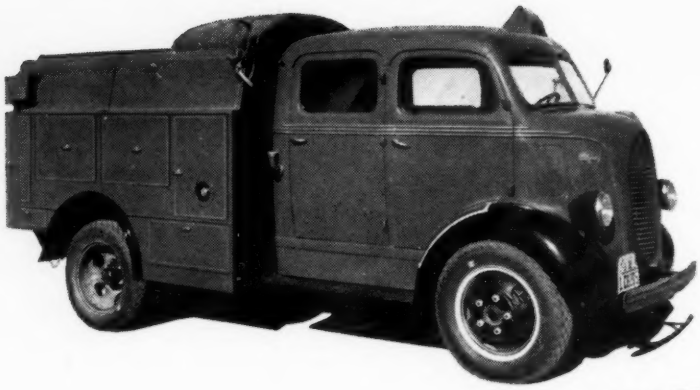
rings and they are cutting the sheath move the rings before they have had time to cause trouble. See to it that all rings on any particular cable are exactly the same size. Also place approved zinc bands adjacent to each side of the poles where most of the ring cuts first appear. Snub the cable on all grades with a device that will not injure the sheath. Lashing the cable will eliminate those ring cuts but don't do it until you are sure that the strand tension is correct and there is only one way to be sure of that—use a dynamometer, don't guess.

This is just as important on a new lashed cable job as when replacing rings by lashing the cable. The weight of the cable per foot must be known to determine what the strand tension at any given temperature should be on

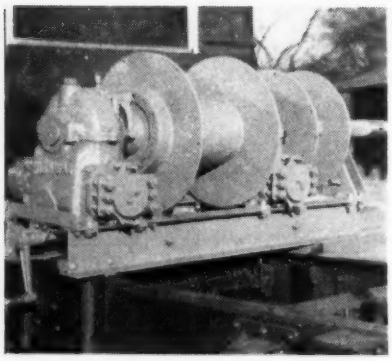
(Please turn to page 56)



LEFT PHOTO: Fig. 6. Sixty-six KV power line after lightning hazard to telephone line was corrected. BELOW: Fig. 7. Close-up of corrections made to prevent lightning damage to telephone line from 66 KV line.



HIGHWAY UTILITY EQUIPMENT



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NO DANGLING NO TANGLING NO KINKING NO TRIPPING

Seven feet of high quality telephone cord koiled to a compact nine inch length that extends to more than four feet. Always retracts, never gets "baggy" or loose no matter how often it is stretched. The NEW Koiled Kord weighs less than 2¼ ounces with an O. D. of .195 inches and has a pull of only 1 pound when extended.

THE NEW KOILED KORD IS NOW AS INEXPENSIVE AS ORDINARY OLD FASHIONED TEXTILE CORDS

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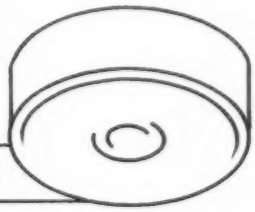


EXTENDS TO MORE THAN FOUR FEET

a suspended cable. Pulling the cable suspended in rings back at corners where it has crept away and making it secure with grade clamps will prevent sheath breaks not only on this corner but where the cable is slack otherwise.

Bowing, as shown by the before and after photo in *Fig. 8*, is one of the major contributors to our cable failures. All aerial cable expands and contracts with changes in temperature but so long as it is a normal longitudinal movement, no harm is done. However, where an excessive amount of slack happens to be in a cable it pushes out on either side, as shown in *Fig. 8*, or even upward in severe cases.

The longitudinal expansion and contraction cause the cable to flex at these points. Eventually the sheath will break from fatigue. Usually, where bowing occurs, the strand tension will be found to be too great. In that event, cut sufficient slack into the strand to reduce it to the proper tension according to the weight of the cable it is carrying. After the strand has been cut, move the cable from each direction toward that point. If the strand is already at the proper tension there is only one alternative—pull the slack in the cable to splices or other convenient points and remove it. This should be avoided, if at all possible, on quadded cable for it may unbalance the quads.

New cable, nitrogen gas filled by the manufacturer and shipped and installed under pressure, is a guarantee that no sheath damage has occurred during transportation and installation. A modified tire valve placed in the end of the cable at the factory makes it convenient to check pressure at any time during intallation and just before splicing. When rearranging cables in manholes, or where apparent mechanical damage has been done to the lead sheath or sleeves, placing the cable under about five pounds of pressure and then applying soap to the suspected area, will definitely prove whether or not the sheath or solder work is good. Sheath breaks or ring cuts in aerial cable may be located in the same manner and repaired, often avoiding expensive cable failures. Flash testing with dry compressed air or nitrogen gas is highly recommended as a preventive measure.

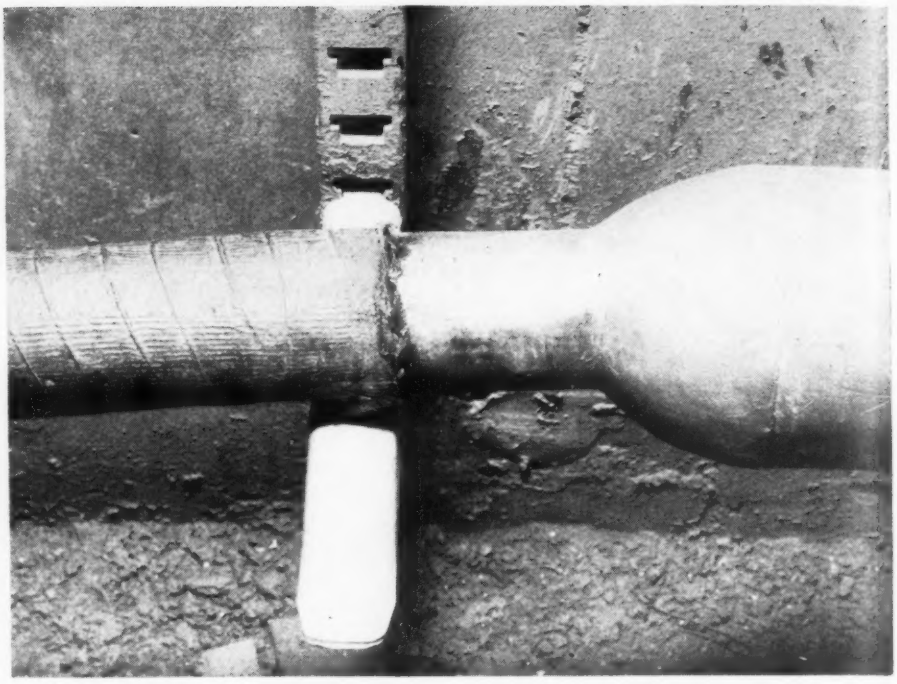


Fig. 9. Underground cable with coating designed to relieve electrolysis conditions.

Fig. 8. Cable bowing before and after corrections were made.

If the following rules are observed during new aerial cable installation, much of the need for subsequent preventive work will be eliminated.

(1) Hold all corner and deadend poles by proper guying.
(2) Place the strand at the correct tension.
(3) If the cable is suspended in rings, place grade clamps at all corners, grades and overlaps for splicing immediately upon completion of the stringing operation. If the cable is lashed, only the overlaps for splicing need be snubbed.
(4) When making splices, be sure not to have slack adjacent to the splices when completed. If necessary place a strand slack pulling device on the strand while splicing.

Most laymen are of the opinion that any wire placed underground ends trouble with it for all time. How we wish this were true. Steam shovels, trenching machines, jack hammers, pipe pushers, and just plain picks being operated dangerously close to our conduit give us plenty of preventive maintenance ideas. While not strictly preventive maintenance cooperation with other utilities and contractors in pointing out, during construction operations, exactly where our ducts are

located, will prove decidely worthwhile.

Electrolysis or corrosion is a subject so involved and complicated that we do not have the time to go into the subject except to offer several suggestions and point out a few developments that are intended to eliminate or at least mitigate electrolysis conditions.

The most important preventive action we can possibly take is to make a thorough study from electrolysis readings of the entire underground plant. Then analyze them intelligently and apply measures that will be effective. All underground cable is vulnerable to electrolytic action whether or not there are electric street railways being operated in the area. Sometimes when electric railways are discontinued the electrolysis problem is not eliminated in the vicinity — it is only changed. Of course, the volume of current found on the cable sheath will usually be much less afterward.

These lower readings should not be taken as proof that no harm will be done to the sheath by it. It should be remembered that any voltmeter reading of positive current flow from sheath to earth or other structures is a danger sign. This should be taken seriously. The voltmeter readings from sheath to earth are only an indication that somewhere in the neighborhood current is flowing, not how much. During the operation of the electric railway system, if the proper drainage and controls were applied, these apparently small amounts of stray currents were added to that which the drainage systems were taking care of and did no harm.

Electrolysis reminds one of a thief who sneaks along in the dark underground ducts looking for a likely spot to make off with some lead plunder. He finds a nice little wet place takes all, or even more than he can carry, and leaves by way of the moisture. Eventually, we wake up with a serious costly cable failure. One way to eliminate a positive condition is to impress negative current of sufficient strength on the sheath in the positive area, so as to overcome the positive to earth condition. This method is usually effective if properly applied. The size of the area that may be corrected by applying negative current to the sheath will vary according to the volume of current impressed upon the sheath as well as other local conditions.

When we install Cathodic protection we must provide a buried anode some distance from where the negative current is applied to the sheath. A suitable spot must be located where a mass of carbon or metal may be buried and the positive current connected to it.

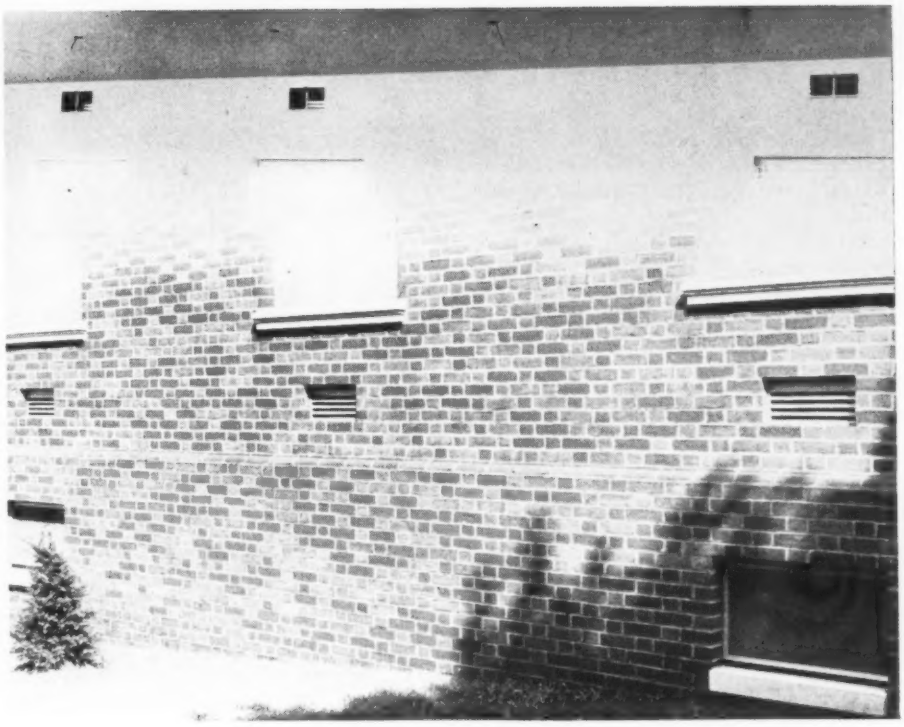


Fig. 10. Ventilating system for unattended central offices.

This anode bed should be located where other nearby structures will not be affected by the positive current. Where battery is furnished over cable pairs to PBX switchboards or other battery operated apparatus, if such equipment grounds are connected to the underground cable sheath rather than water pipes, or driven grounds, even though the current values are low, they will help in keeping the sheath negative.

It is a well-known fact that dissimilar metals, together with the proper chemical, will create a source of EMF. Therefore we should avoid accidental loose contacts between the underground cable sheath and other buried metal, such as metallic conduit, bends, fittings, etc. If we have the right bit of chemical in the water that may be present, corrosion will occur. Bonding the lead sheath to metallic riser pipes on poles and buildings is good preventive insurance against electrolytic action, also it is a protection should the sheath come in accidental contact with a power wire in case the underground cable extends as an aerial cable.

The illustration in *Fig. 9* shows a cable with a compound and tape jacket over the lead sheath. This cable was installed where sheath failures occurred due to the sheath being positive to earth in the area. If such cable can be installed successfully without rupture to the coating during pulling in operations or later injured otherwise, it should be effective during the life of the protective material. However, if even a small area of this coating is damaged, exposing the lead sheath in a positive area, it is likely to cause a concentration of electrolytic action at that point and quickly cause a sheath failure. The distance between the bare lead sheath and the metallic cable rest is very short as shown by the illustration. Moisture here could easily be the conductor for positive current from the sheath to the rest, flowing from there to earth, or by way of the cable rack to other bare cables supported by the same rack.

Cables with neoprene jackets over the regular lead sheath also are designed to prevent the flow of current to and from the sheath, because neoprene is an insulator. Therefore, if we place this barrier between the lead sheath and other metallic structure or earth, theoretically, no current will flow to the sheath, so no current will be on the sheath to flow off at some other point to do damage. Much depends on how carefully these cables are placed without injury to the neoprene jacket.

Alpeth, the new composite cable sheath of aluminum and Polyethylene, a product of Western Electric, was designed as a substitute for lead sheath cable during the war.

In the central office, dust is a major contributor to equipment failures, being the chief cause of wear in moving parts, contact failures, etc. Every effort should be made to exclude dust from all rooms which are housing equipment. Scrubbed, waxed and polished floors not only improve the ap-

(Please turn to page 102)

THE APPLICATION OF CARRIER

By H. R. HUNKINS
Systems Engineer
Federal Telephone & Radio Corp.

THE last 35 years have witnessed a remarkable increase in the use of telephone and telegraph communication. This same period has seen the introduction and widespread use of the science of electronics. Most of the technical advances having to do with the application of electronic devices to communication have been in the fields of radio and long distance wire communication. There is a recent trend toward the combination of these two for providing the greatest flexibility in spanning distance and for producing the greatest quantity of facilities with the least expenditure of funds and basic materials.

One of the principal contributions to long distance wire communication has been the invention of carrier. The basic idea, originally conceived by Major General Squier, relies upon the fact that the wire lines themselves are capable of carrying a spectrum of frequencies much greater than the narrow band required for a single conversation. The carrier technique is concerned with utilizing the wires to transmit a number of conversations spaced at intervals in the higher frequency spectrum. The use of this principle has grown to such an extent that, in the United States alone, over 50 per cent of the long distance circuit mileage is provided by carrier telephone channels.

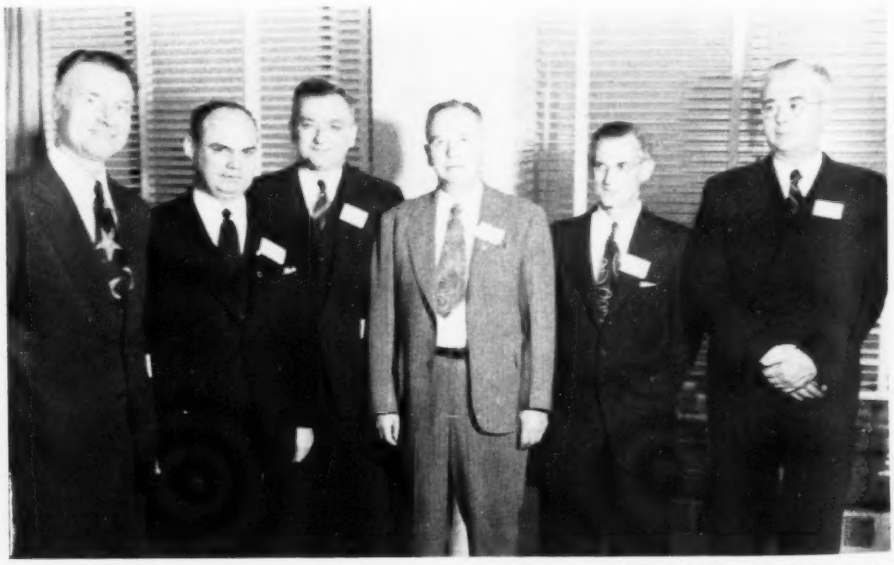
Normal speech, acting upon the transmitter of a telephone, produces alternating currents in a band of frequencies from a few hundred to several thousand cycles. It has been determined by laboratory tests that good intelligibility can be obtained by assuring the transmission of the band of frequencies from 300 to 2,700 cycles only. The lower and higher frequencies thus excluded contribute very little to the effectiveness of speech.

In a carrier telephone system, the normal voice frequencies emanating from the telephone are shifted bodily upward in the frequency spectrum to occupy a band, for example, from 3,300 to 5,700 cycles. This band is transmitted over a pair of wires along with the lower frequencies of the normal telephone circuit. At the receiving end, the higher frequency band is shifted back to normal voice frequencies, whence it appears identical to the original conversation. This function of shifting a band of frequencies upward or downward in the frequency spectrum is called "modulation" or "demodulation" respectively. The devices for accomplishing this are called a "modulator" and a "demodulator" and their physical combination is frequently referred to as a "modem," a contraction of the first syllables of the two names.

A number of telephone conversations may each be shifted to different positions in the frequency spectrum and transmitted over a single pair of wires. This is called a multi-channel system. Now, since all these frequencies become thoroughly mixed when traversing the same line, it is necessary to provide means for separating them at the receiving end and directing each band to its respective demodulator and telephone instrument. This separating is done by means of electrical filters, which are devices which pass freely certain specified bands of frequencies and exclude all others. Other filters are used to separate the carrier channels, as a whole, from the normal voice frequency band so that the existing side and phantom telephone circuits remain unaffected by the addition of carrier. Thus we see that the principal constituents of a carrier system are modulators, demodulators and filters.

Carrier telephony has found its greatest application in providing additional toll circuit facilities over distances from 100 to 1,000 miles. Equipment has ordinarily been provided to furnish one, three or 12 carrier telephone channels over a single pair of wires. Although most of the equipment offered for toll service has been rather expensive, it has still been possible to prove it in economically because of the relatively high cost of stringing additional wires to provide the equivalent services over these distances.

The accelerated growth of electronics manufacture created by the last war has brought about a change in the economic picture which is of particular interest to the Independent telephone operating companies. Many of the components used in large quantities in electronic circuits, such as resistors and capacitors, are now available at greatly reduced cost. Likewise, magnetic core materials which are the backbone of carrier modulator and filter design, are readily available in more efficient form, together with new techniques for the manufacture of hermetically-sealed containers, moisture-proof packaging and miniaturized components. The result of all this is that carrier equipment is now being produced which is of smaller size and lower cost, and with better performance than heretofore possible. There are many situations in the telephone operating company which are natural fields for the application of carrier, providing the cost is justified. Most of these cases are previously untouched by the carrier influence and pertain, in greater part, to the trunk and subscriber's plant and are now on the in-



Left to right: W. A. KERN, Rochester, N. Y.; L. J. DENNEY, Federal Telephone & Radio Corp.; G. W. MILLER, Rochester, N. Y.; I. W. GLEASON and R. W. ENGSBERG, both of Federal Telephone & Radio, and FRANK DAVIES, General Telephone Directory Co.

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GraybaR Distributed by GraybaR ELECTRIC COMPANY

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* TELEPLATED conductors have a lead coating to resist corrosion, then a coating of brass is electroplated over the lead to provide enduring adhesion, — YES, Adhesion equal to the tensile strength of the conductors.

The WHITNEY BLAKE Company

New Haven, Connecticut, U.S.A.

crease due to the expansion of dial operation and the concomitant need for greater trunk facilities. At the same time one new requirement upon carrier operation becomes apparent; namely, that dialing and signaling must be accomplished over these circuits. Hence the conclusion is properly drawn that any type of carrier equipment to be used in the trunk plant must be capable of handling dial impulses and/or supervision and must be priced to compete with the cost of stringing relatively few miles of wire or cable.

Many telephone manufacturing concerns have recently entered the carrier field, including Federal Telephone & Radio Corp. Since all carrier systems operate on the same fundamental principles I am predicating my further discussion of the applications in the Independent field upon the Federal short haul system.

The FTR 9-H-1 short haul carrier telephone system has been designed to provide up to three channels of high-grade communication over limited distances where the price of the equipment is a primary factor in justifying the application of carrier. With today's present high cost of erecting crossarms and stringing wires to obtain additional facilities, this system is comparable in first cost to a wire circuit six miles in length and the maintenance costs are significantly less. In addition, the quality of circuit derived by carrier is consistently high and freedom from line noise, even when the line is in trouble by reason of a ground or open, is a characteristic advantage of carrier operation.

Each 9-H-1 channel terminal is entirely contained on one panel 19 ins. wide by seven inches high, designed for mounting on a conventional relay rack. Additional parts are available for table or wall mounting, in the case of small installations. The equipment of the panel comprises the modulator-demodulator with its associated oscillator, the band filters for separating the "go" and "return" carrier frequency bands, the line filter for separating the carrier bands from the normal voice circuit, signaling circuits for transmitting ringing, supervisory and dialing signals over the carrier, and a power supply for operating the unit from the AC power mains. All of these are contained on the one panel.

Left to right: O. C. BUCK, New Richmond, Ind.; C. P. STOCKER, Lorain Products Corp.; ARTHUR RUDLOFF, Lake Crystal, Minn., and LaMAR STOOPS, Nappanee, Ind.

Three channels of the carrier, or any choice or combination thereof, may be applied to a single pair of open wires. The three channels each shift their respective conversations to different bands in the frequency spectrum. These bands are arbitrarily chosen to conform to the standard frequency allocations of existing single and three-channel long haul toll systems, so that if any of the latter systems are working on other pairs of the same pole line, interference between systems will be minimized. For example, the first channel of the 9-H-1 system uses the band from four to 10 kc; the second channel 13 to 20 kc and the third channel 28 to 35 kc.

The approximate maximum range of the system when working over a pair of .104-inch copper line wires is:

For Channel 1—150 miles
For Channel 2—100 miles
For Channel 3— 75 miles

The introduction of appreciable lengths of non-loaded entrance or intermediate cables will reduce this range at the approximate ratio of 10 miles of wire for each mile of cable. It is quite feasible, however, to consider the application of carrier to a circuit made up entirely of non-loaded cable. In this case, the approximate maximum range of the 9-H-1 channels would be:

	Over cable of		
	13 ga.	16 ga.	19 ga.
For Channel 1	18 miles	12 miles	7 miles
For Channel 2	15 miles	10 miles	6 miles
For Channel 3	12 miles	9 miles	5 miles

In the general case, it is customary to compute the transmission loss of the actual circuit layout in terms of decibels loss at the highest carrier frequency for each channel, respectively. For example, in applying Channel 1, the loss of the line at 10,000 cycles is the determining factor. Likewise, for Channels 2 and 3, the losses are computed at 20,000 and 35,000 cycles, respectively, where the loss of the line does not exceed about 20 db at the channel frequency involved, the cor-

Left to right: TRUDY CROKER, W. M. AIKEN, J. L. SCHNEIDER, S. A. LORENS, ERIC BROOKE, J. G. BONNAR, all of North Electric Mfg. Co.; B. L. GAINES, North Bend, Wash., and R. B. WISEMAN, North Electric.

responding 9-H-1 channel equipment may be applied.

We are now in a position to consider the application of carrier to the trunk plant. In the Independent field we will encounter two principal types of trunk circuits. In large cities, many interoffice trunks are required, consisting mainly of cable pairs between offices. It is possible that many existing trunks may be loaded. The application of carrier to trunk cables will require nonloaded pairs, so this may be a limiting condition. If all of the heavier gauge pairs are loaded, it may be desirable to disconnect the loading from a few pairs rather than attempt to use the smaller gauge wires, because of their restriction upon the range of carrier operation. The other type of trunk circuit normally encountered will be direct dial trunks between nearby towns. These usually consist of a mixture of open-wire and cable and, in general, the distance will be greater. In any case, the over-all transmission loss should be computed from tables showing the loss per mile for various wires and cables. In the case of such mixed lines, one may also expect to encounter, occasionally, extra transmission losses due to the mis-match of impedances between open wire and cable pairs. In severe cases, unanticipated losses of 8-10 db may be encountered which can only be obviated by the use of auto-transformers inserted in the line at selected junctions between wire and cable.

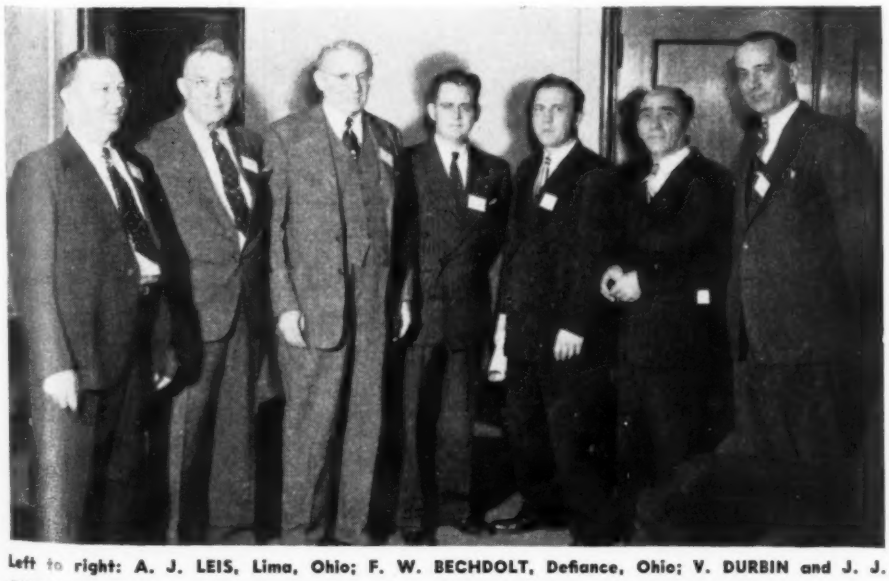
When a trunk situation is reviewed and it is determined that carrier channels can be operated over existing trunk wires to provide the needed services, the next consideration is the selection of carrier equipment which will furnish not only the transmission needed, but also the signaling facilities. Since most trunk applications require one-way or two-way dialing, it is desirable that the carrier channel equipment provide independent paths in each direction, suitable for connection to existing trunk circuit equipment in the central offices.

Left to right: E. L. LOVE, Koiled Kords, Inc.; R. A. MILLER, J. L. COLEMAN, LILLIAN RUZICKA, all of Whitney Blake Co.; P. C. LENZ, Lenz Electric Mfg. Co.; J. H. INGMANSON, C. G. CUMPSTONE, both of Whitney Blake, and R. J. BUTLER, Long Bell Lumber Co.

The 9-H-1 system is designed to give complete flexibility in application to the connecting circuits of manual or dial exchange trunk circuits, toll line circuits, or subscriber's line circuits. Each terminal contains the necessary relays to give two-way ringdown or one-way ringdown, one-way DC supervision. By the addition of one to three relays in an applique unit, it is possible to match the carrier signaling circuits to any dial application at a nominal cost. Conversely, if the dial exchange is being engineered concurrently with the carrier trunk layout, savings may be realized in the cost of trunk circuit equipment in the exchange by using circuits designed specifically to meet the signaling circuits of the carrier channel.

Another interesting application of carrier comes about in the extension of rural telephone lines. In many cases, the present rural lines are filled to capacity and extended to the limits of their transmission range. With the introduction of cheaper carrier systems it is possible to conceive of a carrier system applied to a rural line which will jump out to the far end, pick up a new line at that point and thus permit the extension to new customers beyond the range of the original line. This will, of course, create new problems, such as what to do about the bridged stations in the section of line traversed by carrier to prevent mutual interference between carrier and physical circuit. This problem can be met, however, by the use of a cheap form of filter at each bridged telephone in the carrier section. There is also the problem of supplying power to the distant carrier terminal as well as a housing for it, but this may be met most easily by installing it on the premises of the furthermost subscriber in the carrier section.

I have touched upon some of the most attractive applications of carrier in the Independent plant. These are primarily indicative of the type of inquiries recently forthcoming from operating telephone people. It is probable that there are many more intriguing uses of carrier which may occur to many of you. At any rate, it is evident that carrier is a subject you will all become more and more familiar with as you set about to convert to dial and expand your present scope of activity.



Left to right: A. J. LEIS, Lima, Ohio; F. W. BECHDOLT, Defiance, Ohio; V. DURBIN and J. J. ANDERSON, both of Holtzer-Cabot Co.; R. D. ASKINS, Lima, Ohio; M. PROJANSKY and W. C. STRAUB, both of Holtzer-Cabot.

RADIO—TELEPHONY

By C. H. McLEAN*

I ACCEPTED the assignment of presenting a paper to the USITA Plant Group on the subject of "Radio Telephony" with considerable misgivings for fear that I might upset popular concepts of radio now much in the limelight and, also, that I might inadvertently discourage some Independents who are planning to add radio-telephone service in some form or other to their operations.

My second observation is predicated on radio-telephone experience of the Gary Group during the last 20 years that has included practically every possible use of radio as an adjunct to wire systems, and the fact that while considerable progress has been made, in general, radio has not lived up to what might be called "advance billing," telephonically speaking. I say this with reservations, however, for in our group we have situations where radio has been the only medium that could be economically utilized in the rendering of telephone service in situations where service requirements were great.

Probably my best approach to my subject is to generally review our radio-telephone operations during the last 20 years with which I have been closely associated. During this period radio has been adapted to satisfactorily fill many point-to-point and mobile requirements not feasible or economically possible with wire facilities.

Late in 1929, the first experimental radio-telephone link to our knowledge in the Independent field was established and was placed in commercial service early in 1930 over a water distance of 30 miles between Campbell River and Powell River, located in the operating area of our British Columbia affiliate, the North-West Telephone Co. The radio link completed a 200-mile circuit that included almost 35 miles of deep sea type submarine cable and 125 miles of copper open wire. As I recall it, two frequencies in the neighborhood of 2,000 kilocycles were employed and, as I look back, I cannot but marvel at the fact that this radio circuit, which was fully under control of traffic operators, handled upwards to 90 calls a day on occasion to wire networks at each end of the circuit.

I can also remember that the difficulties in keeping it working were many, as both the transmitters and receivers were early experimental models that generally were unstable and left much to be desired. The transmitters, although low-powered, would periodically build up transient oscillations of unknown origin that would puncture the best insulation obtainable on modulation transformers, and tube failures were common. The receivers, equipped with so-called "peanut tubes," had low sensitivity, low output and automatic gain control was still not a reality. One of the most troublesome features was the fact that the radio link did not include privacy.

Although the carrier frequencies used were outside the broadcast range, the transmitter crystal fundamental frequency (fortunately crystal oscillators were available) was also transmitted rather strongly and, as this was half the carrier frequency, it fell within the standard broadcast band on broadcast receivers.

There were many humorous incidents and some not so humorous, from the standpoint of the telephone company, circulated by listeners in the vicinity of the radio terminals as a result of hearing telephone calls. Subsequently, after a year or so of commercial operation, the radio link was replaced by a submarine cable. This first link served a number of very useful and important purposes. First, it proved that short-haul radio links could be used successfully as an extension of wire facilities and was not impractical as telephone people were accustomed to think at that time. Further, it proved that a considerable amount of telephone toll business was available if telephone facilities were made available to serve isolated industrial towns and communities in our operating areas. Consequently, the success of the Campbell River-Powell River radio link suggested the larger undertaking of providing telephone service by means of radio to the many small but important communities scattered north along the west coast from the 49th parallel as far north as the Alaskan border.

The short radio link just described, operating as it did on frequencies not widely separated from the standard broadcast band, was dependent on ground wave transmission or, in other words, the electrical impulses set up by the antenna travel close to the earth's surface with rapidly decreasing energy as the distance increases. Consequently, with the relatively low-powered transmitters used at that time, a daylight range of about 60 miles under favorable conditions was all that could be expected. It followed, therefore, that a new radio technique would be necessary if the ambitious plan of covering varying distances beyond this limit up to 600 miles on a radio-telephone basis was to be a reality.

By this time, the Bell System was working on high frequency trans-oceanic long-haul radio-telephone circuits and the Kennelly-Heaviside layer skip effect of radio frequencies was generally known. This phenomenon, now better known and much more complicated than first suspected, is one in which certain bands of radio frequencies, reflected back to earth from various ionized atmospheric layers, are utilized to advantage in providing radio transmission over long distances with moderate power. However, little data, if any, was available as to what performance might be expected on relatively short-haul circuits at various frequencies during daylight and darkness periods of each day throughout the seasons of the year. In other words, it was necessary to determine the most suitable day and night frequencies required to provide satisfactory radio-telephone circuits to serve a number of selected settled communities throughout the 600 miles of coast line that we were interested in and, in reality, meant determining the day and night skip effect of optimum radio frequencies for various locations, which was no small task.

The Gary Group by this time was much more radio-minded and due to the bearing that radio might have on a number of other Gary operations in the West Indies, South America and the Philippines with similar requirements, further radio-telephone experimental work was authorized. By means of a yacht completely equipped with radio, successful radio-telephone surveys were carried out over a period of two years, during which time a number of links were actually placed in commercial service. This work provided basic data for the large radio network now operated by the North-West Telephone Co., comprising some 1,250 point-to-point and mobile radio-telephone stations handling upwards to 20,000 messages monthly.

I recently looked up an article that I wrote for TELEPHONY under the date of Dec. 27, 1930, describing in some detail surveys made from the radio-

(Please turn to page 66)

Mr. McLean is consulting engineer of the Gary Group of operating companies and manager of the Gary foreign operating companies.

It's

ER AUTOMATIC TOLL TICKETING

Year after year, at the National Conventions of the United States Independent Telephone Association, the exhibits of Automatic Electric Company have demonstrated the leading position this organization holds in the field of automatic telephony. Telephone men have learned to look to Automatic Electric *first*, for new developments in telephone equipment to meet their constantly expanding needs.

Again in 1948, the outstanding exhibit of the Convention was an Automatic Electric development—Strowger Automatic Toll Ticketing. Telephone men, seeing this equipment in action, recognized it as another remarkable creation of the organization that *knows* automatic telephone switching, from more than fifty years of experience!

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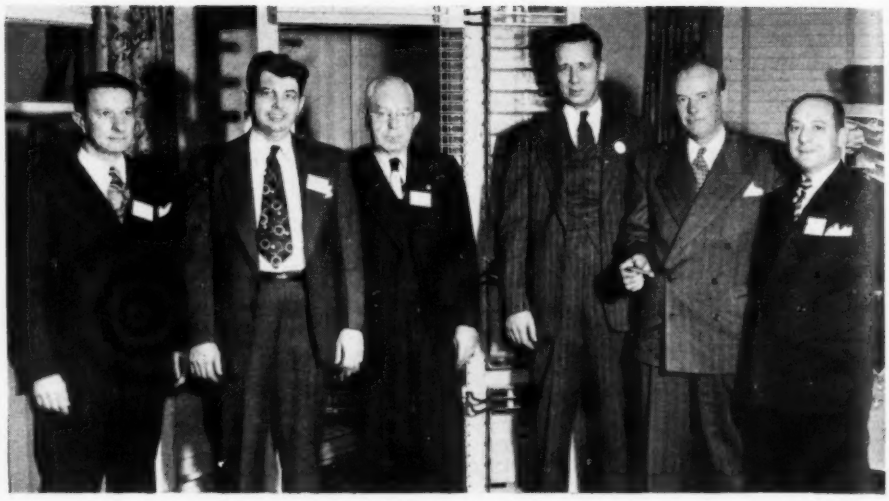
equipped boat and it served to bring back to me the many prophesies that were current during this era of how radio would replace all telephone wire lines, both toll and local, before many years, but almost 20 years have elapsed and we hardly know radio in our domestic Independent telephone field.

Utilizing early North-West Telephone Co. experience and data, extensive radio-telephone networks operating on medium and high frequencies were established in Gary Group operating properties in the Republic of Colombia, South America, the Dominican Republic, the Republic of Haiti in the West Indies and the Philippine Islands, where natural barriers precluded wire lines. By this time, dating from around 1932 onwards, more efficient and rugged radio equipment became available to meet demands, including inverter type privacy apparatus, 10 frequency dial-operated crystal-controlled transmitters, crystal-controlled receivers, voice-operated control terminals, noise reducers and efficient directional antennas, all of which contributed to much improved radio-telephone service.

Initially, our radio operations in all countries were generously assigned whatever frequencies were required to render public service, but, as time passed, frequency assignments in the medium and high frequency band, due to their world-wide interference ability, were assigned in accordance with international agreements between countries with the result that in our larger operations not only were additional assignments for service expansion not available, but some of the assignments were taken away. Thus, we were again faced with the requirement for new radio-telephone technique if service demands were to be met. So far, our interests have provided relief for medium frequency mobile radio-telephone circuits by securing assignments in the VHF 152-162 megacycle region, the same band currently used for our domestic urban mobile operations.



Left to right: W. L. MOLLANDS and J. H. VOSS, both of Stromberg-Carlson Co.; F. B. GORDON, Ft. Dodge, Ia.; D. N. GODFREY, Bellevue, Ohio; T. C. THOMPSON and W. J. PFAENDER, both of Stromberg-Carlson.

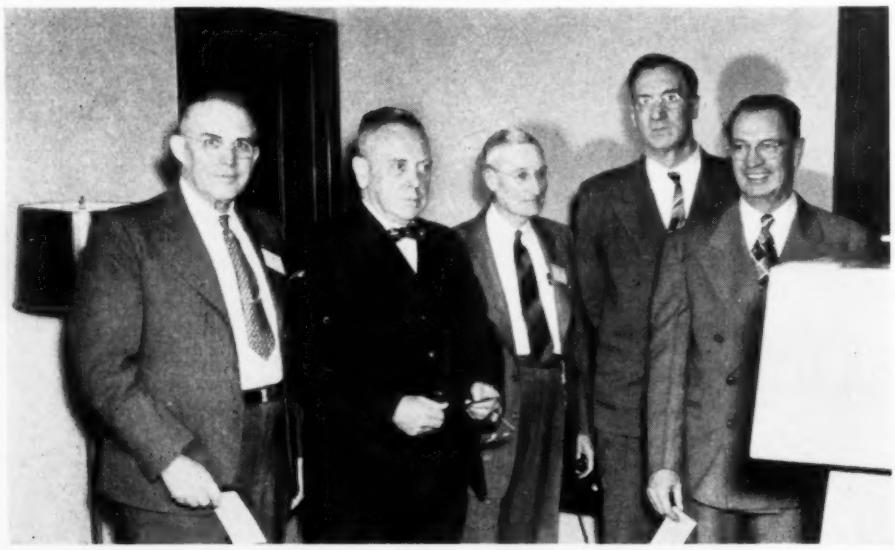
It is interesting to note that the North-West Telephone Co., the scene of the earliest radio-telephone activities in the Gary Group, is currently moving another step forward. Ground wave and skip effect transmission of the medium and high frequencies is giving way to higher frequencies of the so-called "line of sight," so named because of their favorable propagation within the range of optical visibility. To date, besides a number of single hop radio links with from one to four superimposed carrier channels operating in the 152-162 megacycle band, an experimental radio relay system also with carrier has been in commercial service for some time over a distance of approximately 200 miles along the west coast of British Columbia with plans progressing to extend the service by additional relays still farther north. The radio relay channels so provided serve as toll circuits or trunks to switch short-haul, point-to-point and mobile calls into toll centers for handling in the same manner as wire traffic.

For radio relay circuits now in commercial service, interim operation is in the 152-162 megacycle region and although these frequencies are satisfactory for immediate requirements, there is every indication that our experience of the past will be repeated and the number of channels that will be available to serve future radio relay requirements will be inadequate even in the less populated areas. Where our next move will be in the radio spectrum is difficult to foresee with accuracy at this time due to the many variables involved.

In addition to the foregoing, current North-West Telephone Co. plans include an experimental wide band microwave circuit operating in the region of 6,000 megacycles and equipped with multi-channel carrier on a frequency division multiplex basis. This project shows much promise for future applications in the Independent field, particularly as a medium for providing short haul multi-channel toll facilities, but our work is not yet sufficiently advanced to report on.

Independents may be operating in the ultra and super high frequency regions in this country sooner than they suspect. It has been authoritatively stated that there may be as many as 400 television broadcast stations on the air within a two-year period, covering 140 metropolitan areas and eventually serving around 39,000,000 homes. This anticipates extensive television relay facilities that, from

(Please turn to page 104)



Left to right: F. W. BECHDOLT, Defiance, Ohio; J. A. ROYCE, Graybar Electric Co.; J. A. FITTS, P. G. DOWNTON and H. G. CAMPBELL, all of Electric Storage Battery Co.

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CHANGES IN SALES TECHNIQUE

By D. A. KAFKA
General Commercial Supt.
Peninsular Telephone Co.

DURING the 1930's we in the telephone industry laid great emphasis on sales promotion. With most of us, no effort was spared to encourage the sale of service by every conceivable method. The larger companies set up full-sized sales departments and practically all of them conducted sales promotion campaigns which were carried on by employes. The type of program varied between companies, but all had the same objective and that was to sell as much service as possible to produce as much revenue as possible. The revenue derived from this activity spelled the difference between staying afloat or sinking for many a company.

It was a period of great strain in the industry but as is frequently the case, adversity draws people closer together and inspires them to greater effort, for the common good. We had a great deal of idle plant facilities and equipment so it was mostly a problem of discouraging disconnects and making installations, about as quickly as orders were written.

By the time the war broke out in Europe the industry was well on the way to recovery. As one nation after another became involved in war, we gradually curtailed our sales program, and then came Pearl Harbor. After that, instead of sales programs, we had a series of conservation orders, including Order U-2. What idle plant and equipment we had was quickly used up to fill high priority orders. Due to the necessity of conserving critical materials, only a limited amount of equipment could be obtained. During the postwar period the shortage has continued, but with much difficulty great progress has been made.

During the war and postwar periods, a huge backlog of applications piled up and most companies are still confronted with the problem of supplying the demand of these unfilled orders, as well as orders for upgrade of service from present users. The only way this demand can be supplied is by the installation of additional plant capacity. Even if the equipment and material to provide the plant was available, it would take a long time. But with the scarcity of these items the delay seems endless, not only to the people who are awaiting the installation of service but also to us.

Now let us explore for a moment the reasons for this unprecedented demand for service on the part of the public.

First let us trace the growth of service in the United States.

Year	Stations in Service	Increase
1900	1,500,000	
1910	7,500,000	6,000,000
1920	13,500,000	5,500,000
1930	20,000,000	7,000,000
1940	22,000,000	2,000,000
1947	35,000,000	13,000,000

The growth of stations in service for the period 1940 through 1947 is nearly as large as the growth from 1910 to 1940. During the 30 years preceding 1940 the net station gain was 14,500,000. During the eight following years the net station gain was 13,000,000. It is almost beyond comprehension how this has been accomplished in such a short time and during a period of war and postwar adjustment. If any person is critical of the performance of the industry in the face of these figures he must be unreasonable to say the least.

While there are many reasons for the tremendous demand during recent years, I believe three are outstanding.

First, during the war a great segment of our people suddenly became aware of the many ways the telephone could serve them. Among them were people to whom we had been trying to sell service for years.

Second, increased purchasing power.

Third, a large percentage of the 13 million or more men and women who were in the armed services learned to use telephone service. Most of these are now back in civilian life, but the satisfaction they derived from their experiences with telephone service, is responsible for much of the demand we have had. There are of course many other reasons.

This backlog of unfilled orders has placed us in a situation that has made it necessary for us to revise the sales policy we have known in the past, so far as the sale of service is concerned. Instead of us trying to convince the prospect with all the reasons contained in our sales manual, and that which we had learned from meetings and experience, why he should have service installed, he is now trying to sell us on the reasons why we should install his service immediately. The number and variety of reasons that are advanced are amazing. Among them are many that we overlooked or failed to think of when we were trying to sell service. Where it is necessary to delay installation, due to facilities being limited or non-existant, the reasons submitted are frequently far better than those in our book. Many of the reasons advanced are excellent and should be recorded for future reference. In the future they may be very useful.

Occasionally some of these people get the idea that they can secure preferential treatment by the offer of bribes. Frequently, too, there is collusion between a telephone subscriber moving out of a house and the party moving in, the idea being to keep the company ignorant of the change of occupants notwithstanding the fact they are penalized themselves by not being properly listed.

All of us in the industry have contended all along that the service we render is essential to modern business and social life. The demand for it now proves we have been right. While we are having serious difficulty in providing it, we are making faster progress than many realize, both in and out of the industry. And the day is coming when we shall see the list of "held orders" down to what we consider normal.

In the meantime we have a selling job to do which is unique. Call it "selling in reverse" or call it what you like, we must sell these people on the "waiting list" the reasons for the delay in providing them with service. The reasons are many and each company knows its own problems. The underlying cause is, of course, inability to secure equipment and material fast enough and in sufficient quantity. They must be sold on the idea the company is doing everything possible to secure delivery of the material necessary to provide service. In order to tell the story properly and effectively a great deal of employe training and advertising must be done. Furthermore, the company must back up the story with actual work in progress.

The people who are most interested in and nearest to the problem are of course the employes of the company. This group should be kept informed, by whatever means that are available, what has been done, what is being done and what will be done to provide the needed plant. Our employe group has been our most effective salesman in the past and still is. With the greatly in-

creased number of employes, a greater coverage is possible. Our employes are among the most respected people in the community and have contact with untold numbers of people. One of the popular topics of conversation of today is the telephone and telephone service. If the employe is kept properly informed he can tell the story correctly and intelligently, thereby assisting to keep the public informed and help to avoid the criticism of the company which would otherwise result. Employes should be encouraged to speak out whenever the occasion arises.

The public should be kept informed of the situation and the progress being made by proper advertising in newspapers, on the radio, bill inserts and any other means. Our city and county officials should be furnished up-to-date information from time to time and likewise the state commissions. Officials and employes, who are members of civic organizations, have many excellent opportunities to spread the word. Obviously our business office employes are the people who are on the firing line and necessarily handle the major number of contacts. Careful and continuous training must be carried on among these employes to assist them in handling the contacts properly.

Under present conditions, business office contacts require much more time, than under normal conditions. There is a world of difference between the past and present in our method of accepting service orders. In the past, when a customer placed an order, with few exceptions we asked when he would like us to perform the work. Present day conditions require us to explain at great length the reasons for our being unable to install the service, for whatever length of delay is involved. And frequently it is not possible to say how long the delay will be. Our past training has been always to try to sell a higher grade of service, but now this has been reversed. It takes time to explain to a customer ordering individual line residence service that we are unable to supply it and the reasons therefor. While for the most part, people are understanding and cooperative it is not infrequent some of them become abusive of our employes and the company. Such cases require the utmost tact and patience by the employe handling the contact.

The attitude of our employes, and the manner in which they handle these contacts, have a very decided effect on one of the most important aspects of our business. Just as public opinion is an essential of democracy, so are good public relations essential to the successful operation of business. We in the telephone industry are still enjoying a seller's market and if we are not careful, there are still many people who carry that "little black book." Simply because we are a monopoly and the demand for our service is greater than the supply, is no reason for any of us to assume an arbitrary attitude. Courtesy is traditional in our work and we should do all we can to encourage our employes never to do or say anything that even implies discourtesy.

It has often been said, good public relations begins in the business office and we must keep it so. If our customers comment on how pleasant it is to do business with our office, we are on the right road. Nothing makes me feel better than to have an acquaintance tell me, "It is a pleasure to pay my phone bill, because that little cashier in your office is always so pleasant." But if they are critical of the treatment they receive, look out, there is trouble ahead.

The proper handling of adjustments has an important bearing on customer relations. Regardless of what the source of the request for an adjustment may be, the employe receiving it should listen attentively to get the customer's side of the story with as little interruption as possible. He should then assemble all the facts as shown on our records and arrive at a prompt decision, giving the customer the benefit of any doubt. If we do or say anything which causes him to suspect we doubt his honesty and then make the adjustment, we have lost an opportunity to gain his friendship.

The development of good public relations is not confined to the business office. Every employe on the payroll can be helpful in this respect. Local, toll and repair operators have countless contacts with customers daily.

(Please turn to page 107)

BILL GRAM, of Wilcox-Gay Corp., setting up recorders in TELEPHONY's room on which nearly 200 convention delegates recorded messages to relatives and friends on plastic discs which were mailed out by TELEPHONY.

Left to right: F. H. LEWIS, H. W. CARLSON, J. J. EIBYE and R. B. RITTER, all of Raytheon Mfg. Co.; W H. PERKINS and J. S. McANDREW, both of Automatic Electric Co.

EMPLOYER-EMPLOYE RELATIONS

By RAY DALTON
Vice President
West Coast Telephone Co.

THE subject of "Employer-Employe Relations" was never so vitally important as it is today in every American business or industrial activity. It seems to suggest that in business and industry there are two groups of men arrayed against each other who must be continually at war. I cannot subscribe to that principle.

However, a third party enters the picture of "Employer-Employe Relations" and that is the labor union which has been aided, assisted and abetted by some politicians for an extensive period of time. Generally speaking, the representatives of the union have the responsibility of securing those things which the employes desire, but far greater than that, they must be energetic in accomplishing the long-range program of the union they represent. They have usurped many of the prerogatives of management. Many of the politicians and labor leaders seem to have succeeded in driving a wedge between the employer and employe. They are striving for leadership and are offering many of the same things that were previously given by employers without being forced.

Business is in the midst of startling and changing conditions in labor relations. Labor troubles are not new to business but their present intensity amounts almost to revolution. We have lock-outs, strikes and sit-downs and billy-clubs and tear gas, until I think that old fellow called Father Divine must have known whereof he spoke when he said, "Peace—it's wonderful."

The world is filled with economic unrest. One of the contributing factors has been the failure to settle industrial disputes satisfactorily. Even in this country we are beginning to perk up a little bit on that subject. We have been very smug in the United States. We have felt that here we had a democracy which would go on, which couldn't possibly be subject to influences which have caused upheavals in other countries. However, there are a great many people in this country who are asking whether our whole social and economic structure may not be dependent upon an answer to this problem of industrial or "Employer-Employe Relations."

It is to be remembered that the money which supports government, pays wages and keeps those who cannot work, comes from productive business or trade. This will remain true as long as we have our capitalistic system and the freedom which goes with it. Let employes always be cognizant of the fact that if employers lose their liberty, so will the employes. They will only be exchanging their old boss for what I can assure you will be a much worse boss—government. Just let them cast their eyes to Russia to prove this point.

It is unfortunate that a striking labor union of any size affects other unions, the employment of their members and business in general. It would be fortunate if the losses attendant upon such a strike could be confined to the members of the union on strike and to the business affected, but in our economic system where all business is so closely related, this cannot be true. Why can't labor unions and management have sufficient confidence and trust in each other so that issues may be settled fairly and squarely by both parties without resorting to strikes or lock-outs during which both sides lose financially as well as those indirectly affected?

I do not hold any brief for employers who are selfish and who try to exact as much as possible from their employes—giving reluctantly as little as they can in return. They do not fit into our "way of life" and further complicate a situation rather than help it.

There cannot be any quarrel with responsible politicians or responsible labor unions. We recognize the right of employes to bargain collectively. This is an inherent American right. We should strive for the maintenance of effective, strong and responsible employer groups and strong and responsible labor organizations. The employer's interest lies not in weak unions, but in unions which are strong enough to discipline their men and are honest enough to deliver a fair day's work.

Nevertheless, labor seems to be on the march. If this is the case, it seems advisable for business to analyze intelligently the necessities of the situation, not forgetting that cooperation puts the burden equally upon labor and management.

Maybe we think labor is riding for a fall. Maybe it is, and maybe it isn't—I don't know—but we can't sit back and wait to see what happens, making no effort to harmonize our relationships with our employes in the meantime. I feel that during the past few years we have been somewhat lax in not continually fostering a distinct feeling of cooperation and teamwork between the employer and employe.

I had the pleasure of seeing a football game between one of the strong teams of the central part of the United States and one of our Pacific Coast teams approximately 10 days ago on the Pacific Coast. The game was scoreless for the first three quarters and then the team away from home really turned on the heat. I have never seen such a fine display of cooperative effort and teamwork in my life. They had the ability to work together. They had the desire to win and they did win. We need more of this cooperative spirit and teamwork in "Employer-Employe Relations" in American business today.

Now, what are we as employers going to do about it? For, after all, we must lead and not be led. To me there are two fundamentals which are paramount at this time. The first is to give the employe incentive and opportunity outside the realm of standardization and regimentation. Incentive and opportunity may be broken down into two parts. One pertains to pecuniary gain and the other pertains to the desire and opportunity to achieve craftsmanship. These apply alike to employe and to employer. The second fundamental is that of education. I shall discuss these two fundamentals briefly in their order.

We must provide an incentive and the opportunity of advancement for our employes. Poets may write of effort being its own reward. A truly ambitious man may make extraordinary efforts with no immediate additional compensation in sight but most people require a tangible incentive to learn their business or to work hard at it.

Unfortunately, practically all of the present wage schedules negotiated by labor unions provide for automatic increases from a base rate to a maximum rate in a certain period of years. Such schedules deprive most workers of any real ambition. Increases for merit are very rare or they have disappeared entirely. Every employe knows that regardless of his comparative proficiency, if he does just enough to hold his job, he will reach the set maximum in the set time. It is regimentation. It is mass production of inferiority with a vengeance.

Cecil Rhodes once described trade union socialism in Australia as "the

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paradise of mediocrity and the graveyard of genius." Our variety of it is certainly the graveyard of what we regard as truly American; that is, the exercise of intelligence, energy, initiative and ambition for worthwhile rewards.

In many instances the spread between the starting and top rates is entirely too small. Likewise, in many cases the margin between the wages paid routine workers and the salaries of supervisors or minor executives is not adequate.

It is easier to analyze a bad situation than to find a practicable way out of it. At the present moment, I must admit, it may be difficult to push the pendulum back towards sane, competitive Americanism in American industry and business. However, we must make the attempt. Nothing could be worse than to sit inert and do nothing until it is too late.

There is plenty of evidence that the present trend will not continue. Soon we may be able to restore a reasonable degree of competition to our working agreements and give the merit factor something like its former weight.

It will require courage, vision, hard work and money, but whatever it may take, we must give. We must insist, at each and every opportunity that arises, on revisions of our wage agreements that will restore merit as the biggest factor in promotion.

Nothing is more fundamentally un-American, nothing could be more deadly to our service, than the perpetuation of working conditions which destroy employe incentive.

In the re-establishment of merit ratings, we must safeguard all employes against favoritism. One of the reasons behind these rigid, length-of-service wage schedules was employe resentment at the abuse of merit promotion. There have been too many cases in the past where the true merit factor was lost in favoritism and personalities that had no relation to efficiency.

Left to right: MRS. R. B. STILL, Bloomington, Ill.; H. B. MacMEAL, Runzel Cord & Wire Co.; MRS. H. G. LANKFORD, Chicago, Ill., and MRS. O. R. ROACH, Ft. Wayne, Ind.

Obviously, there is no golden formula for 6,000 companies of varying sizes, operating in 48 states under a wide diversity of conditions, but I suggest this objective to the executive management of every Independent company. Examine your wage schedules and your promotion practice. Wherever you find a condition whereunder ambition and merit are held back and frustrated in favor of mechanical routine advancements, fight that condition with all your power. Call in your union representatives and your employes and let them know what you plan and why. It may surprise you to find how much support you will receive from most of your people. Americanism is not dead. Don't think for a moment that all of our employes are solidly behind the socialistic trends.

We owe it to our more earnest and ambitious employes to ensure them the good old-fashioned right to earn a greater reward for a greater effort. Thank Heaven there are plenty of them.

Many words have been written and there has been much discussion of employe training and education but I am afraid that very little has been done about it. I recall a story I read some time ago which illustrates my point. It seems that a hopeful customer strayed into a small-town drug store one day looking for a magazine. He looked all around the store and didn't see the magazines, in fact, he didn't even see a sales person. Finally, way back at the end of the store, he discovered the clerk tilted back in a chair, deeply engrossed in reading a book.

The customer called back to him and said, "Young man, where can I find a *Saturday Evening Post?*"

Without looking up the clerk replied, "Right there on the rack with the rest of the magazines."

The customer found it, called back and said, "Young man, how much is it?"

Still without looking up, the clerk said, "It says on the cover how much it is."

The customer took out the coin, laid

(Please turn to page 110)

Left to right: R. H. CALVIN, McCabe-Powers Auto Body Co.; R. L. KLINGER, St. Paul, Minn., and R. B. LYNCH, McCabe-Powers.

BUSINESS OFFICE RECORDS

By H. F. MORAN
General Commercial Supt.
Central Group
General Telephone Corp.

EVERY year the telephone industry throughout this country spends hundreds of thousands of dollars to improve and expand its telephone plant and services. This expansion and improvement we express in terms of new central office buildings, new or enlarged switchboards, additional cable installations, new pole and wire plant additions and extensions, and new station installations. To properly operate and maintain the new services provided for by these enlarged telephone facilities, we find it necessary to increase our payrolls through the addition of many new telephone employes in the plant, traffic, and commercial branches of our business. We are indeed doing everything that is possible to improve the quality and enlarge the scope of our service. We are providing the money, the equipment, and the manpower to attain these objectives.

Such an attitude toward our business should reflect constantly improved customer relations, and I think this is generally the case, but at the same time I feel that there are still altogether too many customers who think even less of us in spite of all that has been accomplished servicewise simply because somewhere along the line our exchange business office records have not been promptly maintained or that the need for such records may have been entirely ignored. It is unthinkable that any of us would knowingly permit, for the want of a written record, a misunderstanding to arise with any of our customers which might develop into a complaint to depreciate the effectiveness of the service improvements which have been made at great cost in effort, time, and money to promote and create, among other things, a more complete customer satisfaction with the telephone service we are providing.

In exchange business offices, our commercial representatives have the opportunity to talk to many of our customers every day. From some of these people we hear what they think of our service and it is important that if what we do hear is not good, that we make a record of the report and follow it up until we know that whatever the customer's complaint has been, it is fully corrected and the customer promptly advised of the steps that have been taken to insure improvement in his service and its future proper performance. Yes, and we can put down the good things that people have to say about us. It is nice to know who our friends are that take the time to compliment us on a job well done.

By far the greater majority of our business office contacts, however, concern the matter of handling requests made of us for new or additional telephone services. How do we go about taking these orders?

Do we write them down on a slip of any handy piece of paper or on the back of a canceled toll ticket that just happens to be within reach? Or do we have an application card available designed for just this purpose. This is a very important record. We all have tragic memories of a promise, honestly made, to perform some service but which was completely forgotten because the person who received the request made a very careful note of it on the back of an old envelope and the very same day cleaned house and threw the old envelope into the waste basket. We know the customer feels much better if, among other records in our business office, we use a printed application for a service card because it creates a feeling, and rightfully so, on the part of the applicant, that there is something businesslike about our organization and that we intend to get the records straight to begin with and carry out his instructions without any misunderstanding.

Now, what information should we provide for on an application for service card? And, after securing the required information, what use should we make of it? In the first place we should provide space to note the type and class of service and equipment promised to the customer, together with the applicable monthly local service rates. If, because of equipment shortages, the service sold is not such as will best meet all his requirements, or is something other than requested, this information should also be shown on the card so that when facilities do become available your records will reflect the names of those customers for whom regrades in service must be provided.

You will want the record of your customer contact to show also the directory listing, as requested by the customer, just as it is to appear in the next directory issued for the exchange. If the request of the customer in the way of a directory listing does not conform to the directory practices for your exchange, he should be advised what is permissible so that when the directory is issued he will be completely satisfied with his directory representation. In connection with the customer's directory listing, space should be provided for the proper directory designation and main classified heading as agreed to by the customer at the time of his application. Perhaps an additional listing has been requested or joint user service is to be provided. In the case of joint user service, space should be available for recording this information with the applicable designation and main classified heading. It often happens that the new customer does not wish to have his telephone bill mailed to the directory listing address, and we should be certain that this information is noted on the card.

There are other details of the customer contact that you might consider as necessary information to be noted on the application for service card. Such items are directory advertising information, service connection charges quoted, guarantee deposits requested, and reference to any local service charges collected in advance of the installation date. It is also desirable to provide a space for credit references and other miscellaneous information voluntarily offered by the customer at the time of the interview.

In order that the record may be complete, it would appear desirable that your application for service card be designed to include space for the signature of the customer as well as the name of the clerk who was assigned to take the customer's order. In addition to the information already mentioned, you will, of course, provide a space to record the telephone number covering the service so that it can be posted to the card as soon as the assignment has been made.

This seems like a considerable amount of detail and you probably wonder just how big a card is necessary on which to record all of this data. Actually, by proper study of the design of an application for service card, all the space required can be provided on the face of a printed card no larger than 4 by 6 inches, and you can use the back of the card for a service record of all further contacts with the customer.

I do not think it is necessary in the preparation of an application for serv-

ice card to indulge in the great American pastime of confusing matters by the use of a lot of "fine print" at the bottom of the card to warn the customer that in signing this application card his application becomes a contract, and then continues to recite all that might happen to him, if he, or his authorized agents, fails to conform to certain rules and regulations governing his service. You can use this space to a much better advantage for recording worthwhile information, and I know of no protection it affords the company or the customer.

Having secured the information required in connection with the installation of a new service, the application for service card can be used as the original record from which the service order is prepared. It should be referred to again as soon as the service has been installed and information noted on the card as to the installation date. It is a good practice, in the event that an installation date has been previously promised to the customer, to keep the card in a current followup file so that if, for some reason or other, service cannot be installed on the date promised, arrangements can be made to advise the customer why the installation has been deferred, thereby eliminating a complaint being registered by the applicant.

This card should be used to check against the first bill issued to the customer so that you can verify the accuracy of the spelling of the name, the mailing address, and the rates charged for service. Incidentally, you should not overlook the necessity in every customer contact involving a request for new service to clearly state the federal taxes applicable to the local service charges as well as the taxes on toll message charges. I would suggest that after the business office has noted the installation date on the application for service card, the business office call the customer at some convenient time so that if the customer has any complaints concerning the installation or service difficulties they can be corrected immediately.

Left to right: S. E. WRIGHT, Schauer Machine Co.; K. C. GILLETTE, James R. Kearney Corp., and O. F. TALLMAN, St. Louis, Mo.

In addition to the application for service card, the business office should have available certain other records which will keep them advised of the customer's status insofar as other business matters are concerned. One of these records which I feel is rather important is the list of unpaid accounts. Many of the complaints that arise are the result of faulty handling of the customer's monthly telephone bill. If the customer's account is not paid within the customary time limit, it is desirable that the name of the delinquent customer, his telephone number, and amount due be recorded so that the business office has at its disposal a list of all unpaid accounts, each noted as to the number of months delinquent as well as information as to the promise, made on the part of the customer, when payment can be expected.

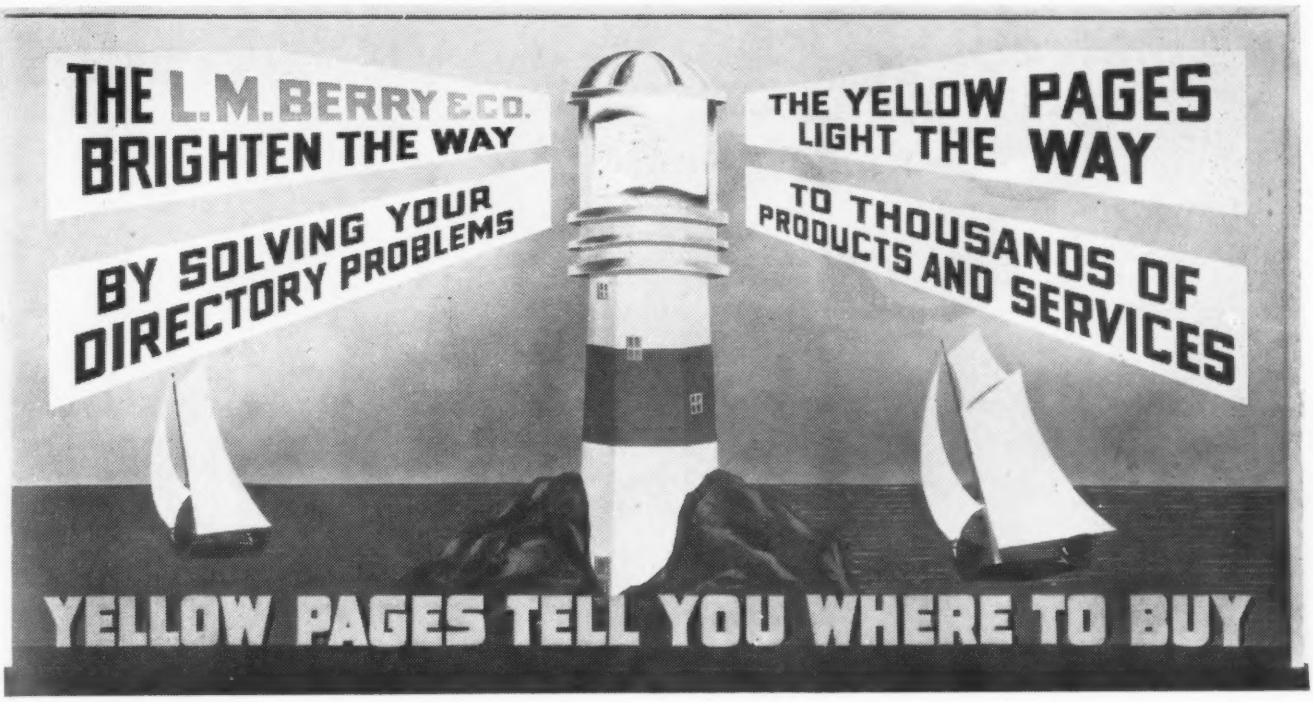
By comparison with previous months' reports, you will soon know who are the persistent offenders and when a new name appears on the list you will understand the need for exercising additional care and common sense in the treatment prescribed by your exchange to enforce the collection of this account. Through the preparation of such a list, you can eliminate many misunderstandings, particularly in the cases of those accounts which are normally paid promptly but which occasionally, because of sickness or vacations, become temporarily delinquent.

In the event that a customer's account persistently appears on your list of unpaid accounts at the close of each month, this information should be recorded on the application for service card so that in event additional requests for service are later made by the customer, or because of abnormal toll usage, you can insure yourself against any possible loss of revenue by requesting a guarantee deposit based on experience already gained with respect to the paying habits of the customer. Most companies employ a disconnect notice to notify delinquent customers that their bills are past due. These notices are frequently printed forms, and I suggest that these notices be reviewed carefully so that they do not create an unfavorable reaction on the part of our customers.

In all of our offices we should provide for a method whereby troubles reported by the customer are promptly handled by our plant forces so that as little time as possible will elapse before the customer's service is back in good operating order. Most of us em-

(Please turn to page 114)

Left to right: P. A. SCHMELTZER and F. M. STRASSER, both of Lincoln, Neb.; N. M. SHENK, Tampa, Fla.; D. H. McNULTY, Telephone Repair & Supply Co.; A. J. SCHELL, Jr., Wm. Bashlin Co., and A. M. WILKINS, Telephone Repair & Supply.



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CHATTANOOGA, TENNESSEE	KNOXVILLE, TENNESSEE	MILWAUKEE, WISCONSIN	ROCHESTER, NEW YORK

TAMPA, FLORIDA

WARSAW, INDIANA

WHAT TRAFFIC PRODUCES

By S. H. KELLEY
Traffic Operations Supervisor
Northwestern Bell Telephone Co.

THIS afternoon we are going to talk about traffic matters and, of course, that means we must principally deal with that "Alice in the Wonderland" of the telephone business—the operator. We might even take a text from the original and say, as the Walrus said to the Carpenter, "The time has come to talk of many things, of chewing gum and sealing wax and cabbages and kings"—for that is the stuff with which we deal in the traffic department.

We deal with many things. But mostly with people—the splendid people who operate our switchboards so helpfully and so courteously that the whole United States looks to them as the watchword of the friendly voice. And, finally, there are the people we serve—the public of our nation whose calls we weave together to unite a hamlet, or a village, or a city, or a nation into one composite society ready to exchange information about its markets and materials, its prices and provender, its hopes and fears, its despairs and delights.

So to talk about traffic work, we might consider it in three ways:

(1) What do we produce? (2) How do we produce? and (3) Who produces?

We can answer the first question very quickly. We must all agree that we produce or manufacture just one thing—that which is the primary value the telephone company has for sale—the completed call. That is the end product—the completed call—but with it goes a wealth of tone and quality in the way it is produced—the friendly, capable, interested, personalized attitude of the operator handling the call. All the rest of our work is only the rehearsal for the main show. Back of the completed call comes the construction of the plant; the induction of the customer through sales, installation of his telephone, working the order through all the records, hiring, orienting and training all the employes in all departments. And it all builds up to the completed call—the conversation. Not just the first call, there is no grand opening, no premiere, no trumpet call when the star appears on the stage, no great climax with the most important call of all. It's just the completed call—every call. Each call moving so swiftly and politely and smoothly that, just like good manners, it's only noticed when it isn't there—when it doesn't happen.

Now what about the uncompleted call? Here we come to how we produce. Is it just a matter of a friendly voice saying, "The line is busy" or "I'm sorry, but they don't answer"? No, it's more than that. Let's look at statistics (and I promise you we shan't look at many of them. These figures do not represent a composite of all calls all over the country, but I suspect they are a fair average.

Today we handle four requests of a customer for our product for every three times that we produce a conversation on a call for another telephone in the same town or local calling area. Less than 15 years ago, out of every six requests from customers we would produce five local calls. Production is down from five out of six to three out of four. Why? Well, "busies" are up substantially and that is only to be expected when, as we well know, central office equipment and cable are short and facilities are pressed into the utmost service they can render—a four-party line is just bound to give more busies than a one-party line.

However, let's not overlook opportunities for regrading where conditions permit. Calls abandoned are about the same as they used to be, indicating the same type of usage by customers who quickly realize they have called a wrong number or didn't want to talk in the first place. But "don't answers" are way up—half again as high as they were in the early post-depression days.

If we analyze lost calls because of "don't answers," we find something to worry about in the whole telephone factory. We find plant installation at fault with telephones located in remote and inaccessible parts of the home or place of business where rings will not be heard or answer time will be protracted, and a quiet, timely suggestion by the installer might have resulted in a good location because the customer knows the installer is an expert. We find places where a loud gong should be recommended. And there are handicapped customers, by reason of deafness or other infirmity, whose installations should be tailored to their needs.

Look next to maintenance and especially the per cent trouble not found on "bells do not ring" reports. How many calls were lost before a customer reports his bell does not ring? Dial no-ring conditions also should be promptly reported to the plant department.

Incidentally, when we look at "don't answers" by kinds of telephones, it is a striking fact that almost twice as high at ratio of "DA's" occur on residence lines as on business lines. Last year DA reports on calls to business lines caused about seven lost calls out of every 100 offered, but on residence telephones, 12 to 13 calls were lost out of every 100 because of DA. Some customers lost a lot of business and we telephone people failed to produce on a lot of chances offered.

Maybe the calling party is too impatient. If so, we had better ask our advertising people to talk more about the good old Golden Rule of waiting as long for your party to answer as you would want him to wait for you. We find there is a lot of gold to be mined out of that Golden Rule, too, when we look over the customer's shoulder and discover that, if he would wait just a little longer, he would get his answer once out of every seven times that he now hangs up. On the average, the calling party now waits 26 seconds. To get his answer on the seventh call, he would only have to wait one minute or for automatic ringing it would mean waiting for some 10 rings—about twice as long as he now waits. I suspect most of you telephone folks here today do as I do and wait about four rings, then give up. Maybe we need an advertising shot in the arm.

Good customer instruction in the use of manual and dial service is important to completion, just as is sound and constructive PBX instruction. Surveys and analyses by sales people and PBX instructors may also bring to light PBX bottlenecks to completion, such as inexperienced or over-loaded PBX operators; over-loaded boards or trunk facilities in firms that have grown large in the last 10 years but let their telephone service fall behind.

But we need to do more than look at the plant, sales, and advertising folks in this local completion. We have to look at ourselves. How are we doing in the operating room on such things as initial rings where code ringing is concerned and on all kinds of subsequent ringing? We are probably not as good as we should be. Actually, in our "not so good" offices we fail to ring again as quickly as we should more than a third of the time. Moreover, if there is anything wrong with

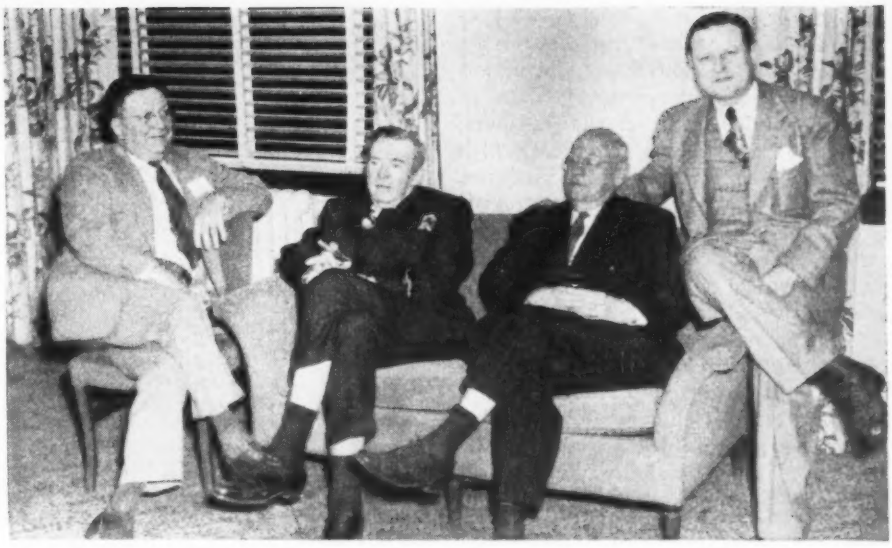
the central office equipment, we might as well not ring at all or, if through poor board markings or careless and inattentive operating, the wrong station is rung, then three customers may suffer—the calling party, the wrong party reached, and the proper called party.

Use of correct ringing keys without fail and proper manual ringing with alertness to properly timed and accurate subsequent ringing require good initial training, judicious retraining and constant alertness of central office supervision to convey to the operators at the board a consciousness of the importance of correct ringing. Rings of proper duration avoid the later need for unnecessary subsequent attempts, thus pleasing our customers and reducing unproductive operating work.

Let's look at toll completion.

In the old days, an uncompleted toll call might harvest a report charge. Today, on the longer haul calls, there may not even be a report charge, and such a lost call means only circuit time and operating time lost and an unhappy customer to boot—and toll completion is down about 10 per cent from what it was some 10 years ago. That is to say, we have almost twice as many uncompleted toll calls as we used to have. Why? "Busies" are up. We could expect this for facilities are crowded. The called party is not available more frequently—the lack of report charge may account for some of this. But "don't answers" have more than doubled. It looks like we have a big chore on our hands to attack and whip this "DA" problem from the viewpoint of both local and toll completion.

Completion of calls is one of the many aspects of our business that can only be solved by the hearty cooperation of all of us, installers, salesmen, and operators—all of us aiming at delivering the one thing we sell, namely, conversations. To energize all of us in this endeavor means that management must define the problem and state the answers in such an articulate way that we all will be inspired to look upon every call or potential call as an opportunity to deliver the only product we have to sell—the completed call.



Left to right: E. C. NELSON, Hubbard & Co.; HENRY TAYLOR, St. Louis, Mo.; M. K. HOLMES, American Structural Products Co., and C. M. RESCH, Graybar Electric Co.

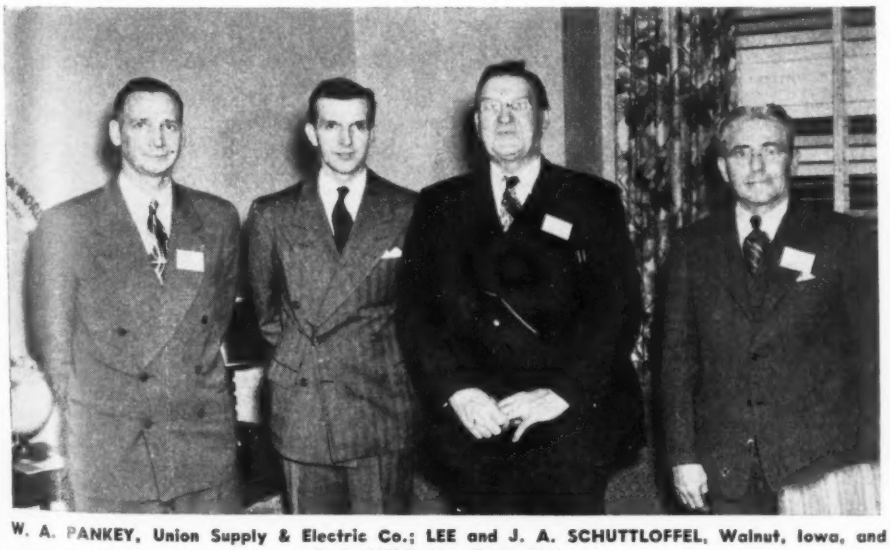
Little things often promote a completed call. We might consider a few examples. First, we can be sure that whatever improvement is made in local completion will also be reflected in better toll completion. Then there is the matter of phrases. A few weeks ago, I noticed an item in TELEPHONY pointing out the obvious difference between a PBX operator saying, "Who is calling?" (and how many of us have hung up rather than answer such an irritating question) and the same girl saying, "May I tell your party who is calling?" One phrase is a red flag because it humiliates the calling party. The other phrase boosts his confidence in his own importance.

It is just this little touch that we need in all our consideration of operating phrases and technique. It is the little touch attuned to the user of the service—to build his sense of comfort, assurance, and convenience and of being served completely, courteously, and expertly. We need, and must have, an imaginative, creative, sympathetic, and objective outlook on development and use of phrases and on dealing with people both inside and outside of our business.

Like most of us, the customer can often be influenced by suggestion. Where there is an option, a slight difference in phrase may mean a difference in completion. For example, there is a wide contrast between, "I will call you" and "May I call you?" The first phrase assumes the favorable answer. The second implies a doubt in our mind as well as the customer's and he will often resolve that doubt to our loss. And back of the phrase—much more important than the words in it—is the attitude and spirit and viewpoint of the operator handling the call—her cordially and courteously evidenced attitude in tone of voice and expressed intent which inevitably will impress the customer of her desire to complete his call and to merit his implicit confidence that she will do all that can be done to that end.

There is the matter of adequate circuit provision and the drag on completion that comes from congested circuits. Maybe most important of all is the development of completion consciousness among all operating people —we had much more of that before the war than we have yet recovered.

It would be a serious omission to



W. A. PANKEY, Union Supply & Electric Co.; LEE and J. A. SCHUTTLOFFEL, Walnut, Iowa, and C. L. LISLE, Mansfield, Ohio.

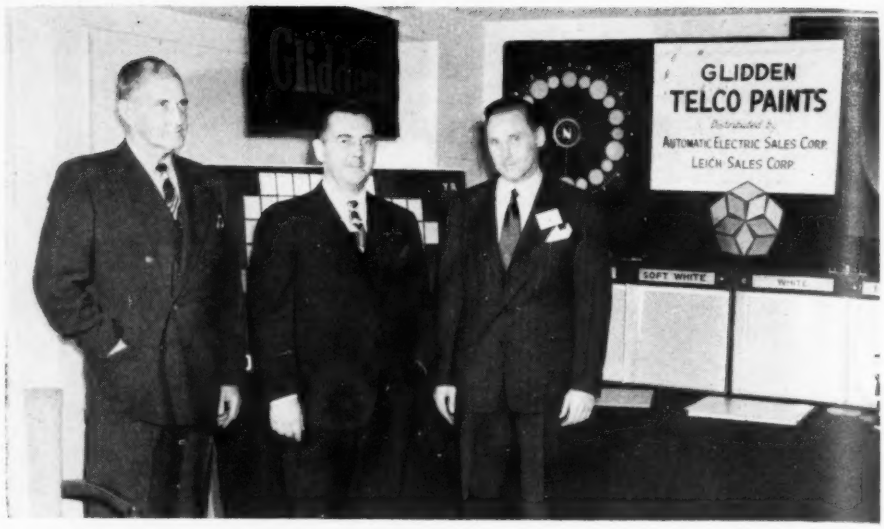
leave these questions of what we produce and how we do it without some mention of the extremely important role that traffic management plays in the financial health of the business. The need for revenues, in keeping with all of the requirements of the business, brings into sharp relief the importance of the dual objectives of maximum call completion characterized by efficient and economical operations. Traffic managements well understand that reasonable earnings are essential to successful private enterprise and I merely suggest that we remind ourselves of our own responsibility in this respect often enough to insure that we are doing our utmost in the common cause.

Having considered the question of what we produce and how we do it, let us turn our attention to producers —the people who do the job. They are the operators who individually turn out the finished product and, when they fail in their objective, the reason therefor may lie within or beyond their control.

When we think of people as component members of an operating force, there is a natural tendency to liken them to a group of office workers or to workers on an assembly line where the job is geared to the force and the output is governed by a known and pre-determined input of raw material which in turn is regulated by the plans of management to supply a certain market.

In the operating room, this situation is reversed. While people still control the output of production, it is a limited form of control in the sense that the flow of demand cannot be regulated as is the input of raw materials in manufacturing processes. That is to say, force balance and control must be dominated by wisdom and foresight looking to the seasonal and economic fluctuations in customer demand for service on the instant. In our business, quite unlike most other enterprises in the world, as we forecast force requirements, we do not look for cycles of generations and decades nor even of years.

We must plan for seasonal cycles by months and days of the week—for we know that Monday traffic is widely variant from Sunday or Tuesday and that, in a given office, Wednesday or Friday may almost invariably be by far the heaviest day. We know that force losses inevitably peak up in the fall and ease off toward spring. And, if we fail to make allowance for these factors in our force programs from month to month and day to day, then the only thing we have to sell—completed calls—will suffer—and calls have only a few seconds to wait before they suffer very seriously and many of them may be lost forever on this account.



Left to right: Z. G. PECK and E. C. ZIBELL, both of Glidden Paint Co., and HOWARD BERSTED, Leich Sales Corp.

Moreover, we know that not only the volume of customer demands varies greatly from season to season, but also the work values associated with average individual calls often change seasonally. The work value of a local call varies but little in a given office, but the average work required for a long distance call may vary enough so that a thousand calls a day require 30 operators to handle them in one month of the year compared to 25 in another month. This is because of the average seasonal difference in switching and attempt requirements of the traffic, circuit drag, operator experience and other variables. This factor must be weighed into force planning to achieve long range good service and the sound business economy which is the inevitable result of consistently good service.

Wishful thinking is dangerous enough in any enterprise, but in force planning it is fatal. Good force programming is a mathematical process where use of careful, objective estimates based on the best of past experience of traffic and probable economic development must be weighed and gauged with accuracy over the long trend and then re-appraised constantly for the immediate future if a sound and balanced economical production is to be maintained.

Now—and here we come to the most important thing—once we have the right number of people to do the job, how do we work with them? Let's think together for a few minutes about human relations.

It is said that the first-line supervisor plays the most important part in human relations. He is the manager, the chief operator, the foreman, or the boss. He can develop participation of individuals and groups not in just doing the job but in doing it competently and well and happily—he can do this by favorably influencing group opinions stemming from the group, not from him. He must recognize it is more his responsibility to understand the men and women than it is theirs to understand him.

This involves the conscious and planned practice of the art of developing and encouraging worker participation in as many as possible of the things that go into production effort. This implies first of all a good informative job—telling people as much of the why of the practices as of the what and the how. More than this, it implies asking for counsel and suggestions from those who do the work, heeding that counsel and giving due credit for it.

It is not easy to follow this plan of getting things done by the group in such a way that each member feels a sense of belonging—belonging in the group and in the business. It is far easier to be the boss, to hand down all the orders, to measure out discipline, to establish all the practices and to take all the credit. But the results are not so good. The other day, I noticed a little comment in a newspaper column saying that, if all bosses interpreted "supervision" to mean "encouragement," it might double our national income.

All people seem to share the same essential job desires and some of the principal ones are:

(1) To be treated as a friend and feel he belongs to the group.

(2) To own something. To have a responsibility.

(3) To receive credit and commendation when doing well.

(Please turn to page 118)

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THE CHIEF OPERATOR

By MRS. MARY G. HADLOW
Pennsylvania Telephone Corp.

THE Heart, center of the system, keeps up the circulation in the blood of living beings. It also is the vital part of the pressure or tension associated with the blood or pulsation of the circulatory system. Let us compare the chief operator to a "Human Heart," think of her as the *center* of the telephone system, the one who keeps up the circulation in the central office.

The Central Office

In every office there is need for management to produce orderliness and efficiency of production. Production in the telephone industry is the completion of telephone connections or calls. The common end to which the entire traffic department should work is the courteous, accurate, speedy and otherwise satisfactory handling of these calls.

In meeting these objectives, orderliness and efficiency can be secured only when the work in an office is fully coordinated, therefore, some one employe is selected as chief operator to assume responsibility for the satisfactory conduct of the central office.

Qualifications of a Chief Operator

In the selection of a chief operator, or the *Heart* of our business, there are certain qualifications which should be considered:

Leadership. A chief operator must be a leader—she must have a natural liking for people because she must possess the ability to deal effectively with various types of people in order to bring out the best qualities in every individual employe and to find ways to produce successful group accomplishment through the cheerful and understanding cooperation of every employe.

Team Work. Team work is another name for cooperation which may be explained as meaning an association of ideas or purposes which generally enable people to work well together. For example:

(1) An employe's confidence in her supervisors and her fellow-workers and in herself.

(2) A loyal willingness to assume full responsibility for designated duties.

(3) A cheerful execution of all responsibilities.

(4) An understanding of the company's policies, plans and objectives.

Knowledge. The chief operator must have a thorough knowledge of the work, operating practices and traffic matters in general. She is expected to keep herself fully informed regarding changes and modifications that from time to time may be put into effect.

Judgment. Judgment is a very necessary qualification as there are many occasions which require quick decision and action on the part of the chief operator.

Imagination. A certain amount of imagination is desirable in order to create a mental picture of opportunities for ideal job conditions. A sense of humor helps too.

Intellectual Honesty. A chief operator must have the faculty of discerning and the frankness to acknowledge errors of personal judgment. She should be capable of self appraisal, be able to know and acknowledge her weak spots.

Courage. She must have the courage to take reasonable risks and to handle problems with firmness and decision and not to be afraid of criticism.

Justice. No human desire seems more insistent than the demand for fair treatment. Above all other things, employes will respect the chief operator for her willingness to do the just thing. She must be loyal to her people, her company, to the principle of the good old-fashioned "Golden Rule."

Sympathetic Understanding. The chief operator should possess the ability, which is all too rare, of appreciating the point of view of others. *She* does not forget that true courtesy, a necessary character trait, comes from within. It is a matter of gentility, self respect, all important factors in winning and holding the confidence of her employes.

DANIEL SEITZ, cable superintendent, York (Pa.) Telephone & Telegraph Co., and author of popular technical articles appearing in TELEPHONY, addressing the plant conference of the USITA convention.

Remembering too, that tact smooths many difficulties and removes many obstacles, she knows that she must exercise reasonable emotional control. This may mean counting to 99 instead of 10 some of the times.

She is ready at the right moment with a word of encouragement, knowing the importance of a better understanding and a good human relations policy because she knows that the development of technical skill alone is not enough.

And now let us look at the first artery of our Heart, the "*Personnel Policy.*"

The chief operator should have a personnel policy to aim to bring out the best qualities in each individual and to unite these qualities into harmonious, team-playing cooperation.

No matter how liberal may be the company's personnel policies, management generally depends upon the chief operator to put these policies into actual effect in the spirit in which they were formulated and intended.

Chief operators should be helpful, kind and considerate with employes when they ask for advice. She should put herself in the other person's place, be friendly and her operators will feel they are being understood and appreciated.

Often the operators are young people —perhaps working for the first time— and freedom and the insistence on being allowed to live one's own life is the slogan of the present generation. There should be no attempt to curb this sense of freedom, but it must be directed along helpful lines so that the young person will learn to carefully think through her problems and to listen to both sides of an issue before she decides what action to take. She must learn that not only her own happiness but the happiness of others depends upon unselfish cooperation at home and at work.

The chief operator should keep herself young in mind and spirit, learn the world in which her employes live and share their living with them. During these years, the young girl is having dates, falling in love, going places, buying clothes and is not established in life as yet, therefore, no worries. Life is full and has had no time to get dull.

The chief operator must not envy her youth and the chances ahead of her, she should enjoy them with her—she should be a true friend—the youth of today can so easily detect insincerity.

The chief operator knows that supervision has passed from the stage where strong arm tactics predominated, to a finer art based on Leadership, Knowledge, Judgment, Imagination, Intellectual Honesty, Courage and Sympathetic Understanding.

And now the "Pump"—the real pressure—*"Technical Performance."*

The chief operator should keep herself fully informed regarding the latest technical phases or developments in her job—she, in turn, should have a training program to constantly develop the best technical performance of every individual employe.

A telephone switchboard represents an expensive investment, it must be properly operated; handled with care and defects or trouble must be promptly reported.

In training an operator, the first and most important step is the planning of a standard method of teaching and then seeing that all operators are taught in a similar manner, making only such changes as required by the individual. Generally, it has been found advisable to adopt the standard toll operating practice in order that the operating over all toll lines may be handled in a uniform manner.

The subject of training is hardly complete without some mention of the ability to teach. Experience indicates that an instructor who can inspire confidence and can adjust her training to meet the needs of different individuals will be successful in developing good operators.

Few people have to be made to do anything—knowing what to do and how to do it can best be done by personal study and knowing why it is done and what its effect will be.

The chief operator is responsible for the provision of a sufficient number of trained operators for all positions—local, toll outward, inward, information and intercepting, repair, supervisory, so the chief operator must watch the trend of traffic and properly assign operators to meet all traffic conditions.

Generally within the central office, there are many routine clerical duties such as—to mention only a few of them—force schedules, employe records, payrolls and peg counts. The chief operator should delegate certain duties and responsibilities to other members of her force. However, she must be careful to assign duties properly and to see that lines of authority are maintained so that, although the final responsibility for managing the office will be in her hands, she will be relieved of those phases of its administration that can be delegated to other employes.

Left to right: W. J. CZUJ, TOM BROWN and J. T. RALPH, all of Motorola, Inc.

A chief operator should not hesitate to teach her supervisory personnel all she possibly can about her duties. The best recommendation she can have is a well-trained force, at least one member of which could take her place for awhile if the occasion required it.

Operating efficiency is a goal which may be approached but never attained as a fixed and permanent achievement.

And we think this is a main artery and a vein too—*"Public Relations."*

The chief operator should have the ability and the desire to deal in an intelligent, courteous and businesslike manner with the public, in all matters pertaining to the quality of the service rendered.

The telephone business and the nature of its service—24 hours a day, 365 days a year, place a responsibility on telephone company employes, the operators in particular of being prepared to represent and to serve the industry creditably on all occasions.

The greatest good can be accomplished if the chief operator will try to impress every employe with her individual public relations responsibility and prepare her to handle it with credit to herself and to the industry. In order to have the proper attitude toward the public, the operators must understand the responsibilities of the chief operator and the part she plays in the organization.

The chief operator is responsible for the quality of the service given by herself and the operators at all times. She must know thoroughly all the regulations for the guidance of the force. In order that she may follow the regulations intelligently, she must know the reason for them and should question those for which she does not see the reason. She is expected to follow these rules herself and to train her supervisory force and operators, so that they also will carry them out. The chief operator should develop an attitude, on the part of the force, of service from the customer's viewpoint, making public relations an important part of all discussions, training and development activity.

Customer contact must be intelligent, sincere, tactful and courteous and a telephone operator should avail herself of every opportunity to promote good public relations. Although the company or an employe may not be at fault, or may not be in a position to help the customer, the operator should try to make the customer feel that she is interested and will do whatever she can to help him with any problem that may arise in his relations with the telephone company.

No one department in the telephone business is sufficient by itself, therefore, every department must depend on other departments for certain cooperative undertaking. The chief operator should encourage friendly relationships between the employes and supervisors of all departments.

This takes a lot of giving from the Heart—*"Housekeeper."*

The chief operator should see that the central office quarters are kept in a livable and workable condition at all times. The central office quarters may include modern up to date operating rooms, locker rooms, wash rooms, etc., or it may be just one room but it

(Please turn to page 120)

TRAFFIC ADDS TO THE BOTTOM LINE

By G. W. ROSE
General Traffic Superintendent
Peninsular Telephone Co.

I KNOW some of you must be thinking "What does he mean by adding to the bottom line—I thought traffic people were more concerned with the top line." It's true that traffic people generally maintain a healthy interest in the "top line" which, for the benefit of you people not actively engaged in traffic force work, is the operator required figure usually broken down into hourly or half-hourly divisions. The "top line" is obtained from peg counts and is used as a guide in drawing operator working schedules. But this talk is supposed to be about the "bottom line" so I will hasten to explain what I mean by this term.

Several months ago I was talking with the general traffic manager of one of the Bell companies and, during our conversation, he outlined a plan, then in operation, to improve the long distance completion in his company. He mentioned that he hoped by this to be able to add to the "bottom line" and upon seeing my look of misunderstanding stated that the "bottom line" was what was left after costs had been deducted from revenues.

So with this explanation in mind I decided to entitle these few words "How traffic can add to the bottom line" and attempt to point out a few ways how traffic, in the face of rising labor and material costs, can help improve the revenues of their respective companies at a minimum of cost. Of course, I'm not going to stand before you and tell you that traffic, or any other department, can bring in a lot of additional revenue without spending a lot of money on additional equipment, but there are a number of little things that can be done at small cost that all add up to improved revenues and better service. Most of these things that I will attempt to picture are not theory but have been successfully placed in operation in various parts of the country.

One of the most successful ways that traffic has found to add to the "bottom line" is, as previously mentioned, campaigns to improve long distance or "toll" completion. Such a campaign has three fold advantages in that it (1) helps to improve the revenues of the company; (2) it has been proved that when such a campaign was in progress the service to the public was generally improved, and (3) it gave the operators valuable training and experience to carry better loads, thus getting a better operating performance for the traffic dollar spent, either by handling more calls with the same amount of operating time or else permitting a reduction in the operating time by virtue of the improved load carrying ability.

During the war years, many of us, through no faults of our own, let our efforts to complete calls slip in many ways. It got so bad that in many sections of the country we were actually relieved when a call was cancelled. Most of this was caused by over crowding of existing facilities, frequent posted delays and also in a large part to an above average force turnover which made it necessary to do quick, half-training jobs that put the new

G. W. ROSE

operator at the board at the earliest possible moment. All of this had its effect in lowered and relaxed service standards, which many of us have not been able to raise in this postwar period which has seen service demands rise to even higher levels than during the war. But this quick training robbed the newer people of the chance to learn the fundamentals of service and the experience and incentive necessary to go all out to complete every call.

Let's see what it requires to get an improved completion campaign started. First, it is necessary to arouse operator and service assistant enthusiasm. Some companies still call them supervisors while others, like my company, have changed their official titles to service assistants in order to avoid confusion in dealing with Bell company service assistants. But whatever their title—they are your key people and as your supervision goes—so goes your service. Their enthusiasm or lack of it can make or break any campaign.

The campaign is usually promoted by general office people but the success rests on the usually capable shoulders of the chief operator and her staff of service assistants. There are no new operating procedures injected into the campaign that are not found in the Toll Operating Practice plus good office practices.

One of the larger cities in Alabama jumped its completion figure from 80.2 to 90.2 per cent in just seven months by doing a lot of little things. So, with like results in mind, we embarked in August on such a completion campaign in my company. First, we told our 12 toll offices what we wanted to accomplish and requested their cooperation. Next, we issued a quantity of promotional data—little things to work on—things that proved successful in several companies. We tried to get across to our operators that if they could convey to the customer the impression that they intended to complete his call —come what may—that he would be more apt to leave his call active until finally completed.

Our 12 toll offices were divided into three groups—based on the number of out calls offered monthly. Each office was urged to establish a friendly rivalry with another office in their group. Monthly quotas were given each office and blackboards, located in each toll room, carried the previous day's results, plus the accumulated monthly figures and quotas, and also the previous day's results of the competing office. Talented operators drew posters from their own or from ideas of other employes to maintain interest in the campaign and keep operators talking about it. A weekly sheet, named the "Completion News," is issued by the general office containing standings, suggestions by chief operators, service assistants and operators, to help along the campaign.

Prominent space was given in the "Completion News" to favorable customer reaction, of which there have been many, particularly as a result of difficult calls which called for special attention and ingenuity on the part of operators or service assistants, or teamwork between two or more offices. In this way, an attempt is made to convey to the operators and service

assistants the fact that these special efforts and acts of courtesy on their part are appreciated by both public and management.

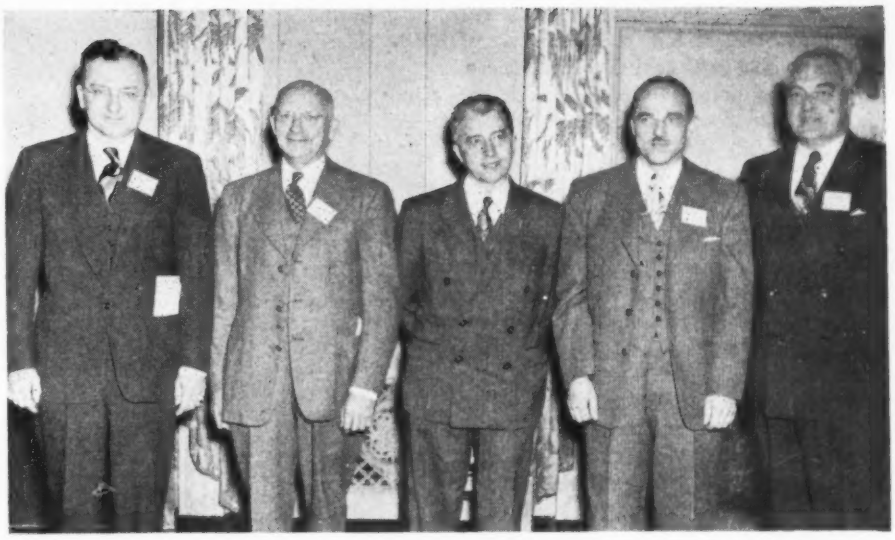
I read somewhere the other day that some prominent man had made the statement that next to the FBI he would hate for the telephone operator to get on his trail. It's amazing how an operator with only a trace of information can run down her party.

After the campaign gets into swing, individual offices really get the ball rolling and proceed to expand the scope of the campaign. Things that general office people had not thought of at all are brought to light. One office has its night people maintain a list of all cancelled calls alongside the name of the operator who handled the uncompleted call. This is not done for competitive or comparative purposes but rather to give the service assistants an opportunity to concentrate on these operators, to learn if they are doing all in their power to complete every call.

Another office divides its Sunday forces into two groups — a complete group working on alternate Sundays. The "red" forces are out to better the efforts of the "blue" forces. Still another office refers every cancel to a service assistant to see if every possibility of completion has been exhausted. Yet another office posts the number of daily completed calls beside the name of the individual operator.

During the war, it was the general practice to automatically cancel all incompleted calls at midnight unless the customer had made a special request to have the call tried the following day. Now, we carry over all uncancelled calls (except pay station calls) into the following day and at 9 a.m. the calling party is contacted and asked if he would not like to have his call tried at that time. The response from the public has been gratifying and a large percentage of these calls are completed. On all incompleted calls the customer is asked to let us hold his call and try it at a later time —even holding it for several days. On Saturdays, Sundays and holidays, customers are requested to let us hold their incompleted calls over to the following day or until the following Monday. Many do just that. If they don't agree we tell them how sorry we are that we couldn't complete their calls.

We have tried to instill in all our operating people the spirit of courtesy and understanding and the need to pay attention to and work on the little things. We explain the reasons why the operator should leave her "key



Left to right: G. W. MILLER, Rochester, N. Y.; DANIEL SEITZ, York, Pa.; DR. J. A. BECKER, New York City; H. R. HUNKINS, Federal Telephone & Radio Corp., and C. H. McLEAN, Chicago, Ill.

open" so that her customer can hear the progress of his call and get the feeling that he is actually taking part in its completion. And indeed he may be as he can hear any report on the call thus saving repeating by the operator and at the same time give immediate instructions for the future handling of the call. In many instances, he will recognize the voice of someone at the called station and though it may not be the desired party he may decide to talk to this alternate.

Such a campaign cannot be successfully completed overnight but will take months to attain the desired goal. However, we feel that the experience gained will be retained and the office will not quickly sink back to the pre-campaign level. The campaign in our company has so far proved successful and even though it has been underway for only a short time the first months of intensive completion activity showed a gain of seven thousand messages over the preceding month. No additional equipment was needed and very little expenditure was made to attain this improvement. We are looking for even greater gains in the months to come.

An additional item which we have found to be invaluable in improving long distance completion is good "TX" service. For those of you who might not be too familiar with telephone slang, "TX" is telephonese for "Delayed Call Operator" or "Delayed Call Position." At these positions, operators generally concentrate on handling delayed long distance calls, mostly "AG's" (try agains) and "leave words." It has been proved to our satisfaction that making subsequent attempts on time, or slightly ahead of time if possible, has not only completed many calls but also has in countless instances prevented the customer, who thought that his call had been forgotten, from filing additional calls to the same called station or party. Prompt answers to all interposition trunks, particularly "TX" trunks, are a must as they reduce operator and circuit time as well as speed up the call.

In this connection, it is necessary to have sufficient trunks to the "TX" positions. Last spring we secured a number of new toll positions but found that it was impossible to obtain any additional "TX" trunks at that time. It was very urgent that we establish at least 14 "TX" positions to handle our delayed call traffic. We wished to break these "TX" positions down to handling delayed traffic to and through certain circuit groups. But the lack of "TX" trunks made our proposed "TX" expansion plans unworkable. However, an idea was advanced that really solved our problem very simply. We secured seven small 100E amplifiers and mounted them on the key-shelf just behind the calculagraphs—one between each two "TX" positions. All seven amplifiers were connected to one interposition trunk. So now any operator wishing to reach any "TX" position has but to plug into this one interposition trunk jack, operate her key, and announce her order through her transmitter. Her voice comes in simultaneously over all seven speakers and the specified "TX" operator picks up the requested toll line or toll recording trunk. If the designated "TX" operator is too busy to pick up the toll line or trunk, one of the adjacent operators reaches over and places her answering cord in the requested jack for her or else the service assistant is nearby to help establish the connection. While this system is not as satis-

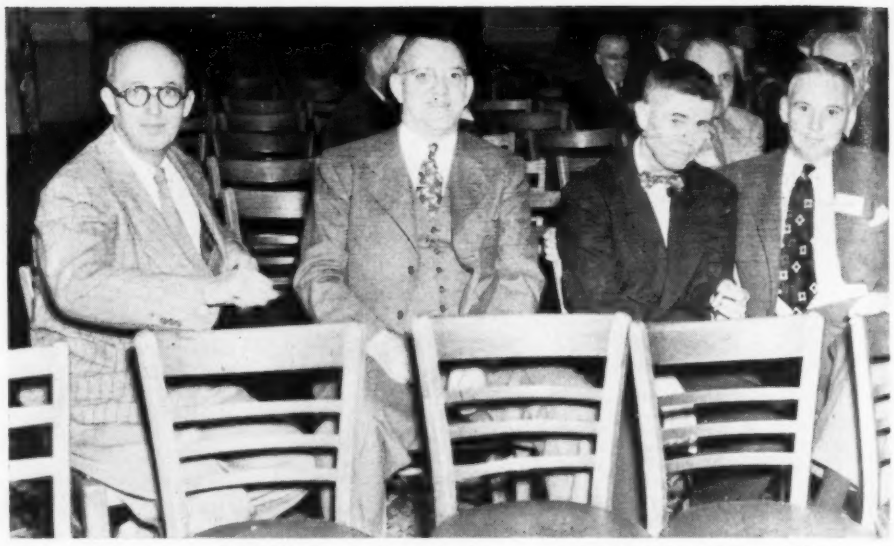
factory as regular "TX" trunks still it has solved a big problem for us. We have observed very little additional room noise being added by this oral interposition trunk or "squawk box" as the girls call it. The cost was just under $25.

In our part of the country, we have quite a number of cities and towns located only a few miles from each other where the station-to-station charges are 10 cents and 15 cents for an initial period of five minutes. Studies revealed that the large volume of terminal traffic between these points was predominantly station-to-station and that only a very small per cent talked over the five-minute initial period. We observed, also, that handling this traffic on the usual toll basis involved a considerable amount of operating and circuit time so that it is doubtful if any profit at all was realized from this type of traffic.

Something had to be done and so what we called the "simplified ticket" came into being. This was really nothing new at all only an expansion of the "A" board toll ticket idea. In the Aug. 21, 1948, issue of a trade magazine, Mrs. Mayme Workman explained that "an 'A' board toll ticket is one written for charging purposes on calls, which the 'A' operator (usually local) handles, to points outside the local service area. The 'A' board toll ticket contains the calling number, called number, entries indicating connect and disconnect times on completed calls, or either a cancellation or scratch if the call is not finally completed."

However, on our "simplified toll ticket" covering 10 and 15-cent station-to-station calls, the connect and disconnect time was omitted, and although publicly unannounced, no timing was made on this traffic. The operator's number and filing time was also eliminated and person-to-person traffic was discouraged to the point where very few such calls were placed.

Upon receiving an order for a number at a simplified ticket point, the operator would enter only the calling and called numbers and reach the called station. If an "NC" condition was encountered, or the called station was "DA" (didn't answer), "BY" (busy), "OD" (out of order), or any other station report was found applicable, the calling party was requested to hang up and make his call later. The ticket was immediately scratched. This plan eliminates the necessity of "TX" making subsequent attempts and having to locate the ticket on "AG's" and leaves the trunks or circuits free for maximum talking time.



Left to right: P. M. SCHUCHART, Tallahassee, Fla.; M. OSTERHOUSE, LaCrosse, Wis.; H. C. STARKWEATHER, Washington, D. C., and GEORGE CROCKETT, Graybar Electric Co.

We have found very little abuse resulting from the elimination of timing of these short haul calls and the operators know pretty well who the few "snitchers" are so they slip the "simplified" ticket under the calculagraphs and time those calls.

As an example of the savings on this type of ticket, two years ago there was a large volume of terminal traffic between two of our points and considerable delays were encountered in handling traffic by the usual toll methods of operating. With the delays came the usual customer reaction. However, by the following year we had instituted the "simplified ticket" method of handling this terminal traffic and, as a result, we handled almost three times as many calls over the same number of circuits as the preceding year and with a minimum of unfavorable customer reaction. The response of our customers to the "simplified ticket" has been generally favorable and the savings in operator and circuit time have been substantial.

Another way which has been found to assist in keeping traffic costs down is a process for reproducing switchboard bulletins at small cost. Good up-to-date switchboard bulletins are a must in all toll offices as their use permits the speeding up of calls by having the rate and route information at the finger tips of the operator. They also help keep down auxiliary rate and route operator hours.

Formerly, it would cost around $150 to have one large and one small bulletin printed by the regular type set method. Now our stenographer types the master bulletins containing up to 400 most frequently called points in strips which are put together into one large bulletin with scotch tape. The large bulletin contains the point, route data and day station rate from each rate point operated by the toll office. The small bulletin contains a subsequent attempt schedule and precedence of calls, plus emergency and other pertinent data about her office, which is quickly accessible to the operator. A printer gets both master bulletins, photographs and reduces them to the proper size. A negative is made and burned into an albumin plate which is then put on an offset lithographing press where the bulletins are printed on eye-ease green paper. Due to the elimination of the necessity of setting type the printer is able to supply our two bulletins for less than $20.

As mentioned previously, there is a traffic phrase which I have found to be generally true, "As your supervision goes—so goes your service." Among your top people are service assistants or supervisors, as you may choose to call them, to whom a large part of office supervision is intrusted. Many offices cannot afford a traveling chief operator or traveling instructor and some feel that they cannot afford to hold special classes for these people. One small cost way to reach these service assistants is by way of small mimeographed booklets—which can be typed and assembled by your office people. These booklets, addressed to the individual service assistants, could carry inspirational items, facts about the office or company, hints on human relations — which is really the service assistant's most important job—facts and questions about operating matters or problems. The service assistants should be asked to consider the booklet as their own and to contribute to its text. While there are no concrete examples of its effectiveness a number

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TRAFFIC'S PART IN CONVERSIONS

By W. A. KERN
Vice President
Rochester (N. Y.) Telephone Corp.

ALTHOUGH the subject and my allotted time on the program limits discussion to large exchange conversions, I would like to make it clear that traffic's part in a large dial conversion is fundamentally no different from our part in a small one. A large exchange is just a grown-up small exchange. A parent bringing up a small child has the same and possibly more responsibility than the parent bringing up an older one. The parent in each case must study and know the child if he is to be given a bringing up which will make a responsible, useful adult.

The traffic department should familiarize itself with the people of the community the new dial exchange is to serve. We must know their present telephone habits and be able to estimate with accuracy what those habits will be in the future. The commercial department can be depended upon to give estimates of future growth in the number of telephones, but upon traffic rests the responsibility to translate this growth into the fundamental data upon which our dial office will be engineered. By fundamental data I refer to the number of calls each line will originate in the busy hour and the holding time on each of these calls. When this data is translated into 100-second calls or two-minute calls, then we are in a position to calculate the number of line finders and selectors which our new exchange will require.

Great care should, in my opinion, be exercised in the taking of fundamental traffic data. In our company, we feel we have removed the guesswork and labor to a large degree from the assembling of this data. About two years ago, we purchased a mechanical or robot recorder. It is only necessary to connect the line or lines from which the data is to be secured, to this machine, flip a switch and the number of minutes the observed lines are in use is automatically recorded on a series of registers. The particular recorder which our company has will scan up to 200 lines at one time. It is apparent that in a relatively short period we traffic people can obtain reliable fundamental data for any exchange regardless of size. I cannot urge too strongly that those of you who have not already considered the purchase of one of these recorders do so. To the best of my knowledge each of the manufacturers of dial equipment can furnish you with information regarding this equipment.

Once the traffic department has the fundamental data, the remaining part of our task in engineering the dial office involves only the detail of converting it into equipment quantities such as links or line finders, selectors or connectors, trunks, etc.

W. A. KERN

Good traffic data on the various classes of telephones in the exchange will prove invaluable in line loading for the office. A good line loading job in the line finder and final selector groups is absolutely essential if the new dial office is to function properly. Here again the traffic engineer must know the number of call minutes or seconds that each line in each group will originate or receive during the busy hour in order to spread his originating and terminating traffic evenly over the entire machine.

Each finder and final group in the office should contain a representative split of the classes of telephones in the exchange. In other words, each group should have a specified number of business and residential telephones. A further breakdown of these two general classes of service is desirable if your equipment does not require the segregation of party lines and PBX lines into specific final groups. The problem of loading is a meticulous one and the larger the dial office, the more meticulous the traffic engineer must be, particularly in these days when spare equipment is non-existent, even in brand new dial offices. A poorly loaded small dial office can be very irritating but a poorly loaded large dial office would be a catastrophe.

After our large dial office has been engineered, then the remaining part of the traffic job must be done. This involves the training and education of all traffic employes in the art of operating a dial exchange. PBX operators must be trained thoroughly to operate their boards on a dial basis. In Rochester, we accomplished this through our PBX instructors. Two booklets were prepared, giving detailed instructions for the operation of cord and cordless types of boards. Numerous pictures of the face equipment of the boards showed the position of the keys or cords for the completion of the various types of calls. Each PBX operator was given a copy of this booklet when she visited our PBX school to receive her dial instruction. Here in the school she was seated at the type of PBX board she was accustomed to operate. This board was already converted to dial and connected with the dial machine. We spent a half-hour with each girl, first explaining the equipment, letting her listen for dial tone, ringing, out of order, and vacant level tones, etc. The remaining time was spent in allowing her to dial up as many numbers as time permitted.

A month later, just two weeks before cut-over, we visited each of the PBX's involved and again reviewed with the attendants, the lessons learned on their previous visit. Two days before cut-over, we called each PBX by telephone to see if any 11th hour assistance could be rendered. There was no one who needed further help, which indicated to us that our coverage had been thorough.

In the dial instruction of other customers, traffic plays an important part but from behind the scenes. The commercial department plays the lead but it lends an attentive ear to any suggestions on the part of traffic.

It is impossible to single out any of the myriad of traffic's functions having to do with the conversion of a large office from manual to dial operation and designate it as the most important function. They are all important and must be performed correctly or the

Left to right: JOHN BURKE, National Carbon Co.; ZINA ACKMAN, Redwood Falls, Minn., and N. S. ALLEE, National Carbon.

final product will be something less than desirable. Like a baker making a cake, there must not be too much or too little of any ingredient and the recipe must be followed to a T, or someone is headed for a case of indigestion.

I will say, however, that the biggest, most trying task—the one that gave we traffic supervisors in Rochester the biggest headache—was the training of our operating forces for dial operation.

In order to clarify our problem for you, I might say here, that the Rochester Telephone Corp., prior to Aug. 27, served 132,000 Rochester city telephones from eight manual central offices. The initial dial cut-over of Aug. 27 eliminated one entire manual office of 16,500 stations and 5,000 stations from another office. The area served by the new dial office is predominantly the business section of downtown Rochester, an area having a very well-defined community of interest with every other remaining city manual office. Consequently, trunking with its associated equipment had to be provided in large quantities to and from the manual offices. As a means for dial customers to reach manual central offices, Call Indicator B positions and associated equipment had to be installed. Conversely, to provide facilities from manual "A" boards into the dial machine, each "A" operator's position was equipped with a key set rather than a dial. Key sets were chosen to substitute for dials because even high speed dials proved to be too slow in their operation for our feature manual A boards. By balancing the additional cost of the key sets against the additional switchboard positions, which would have been necessary had dials been installed, it proved more economical to purchase the key sets.

In addition to these facilities, it was necessary to provide a 14-position dial service A board to handle assistance and short haul toll calls from the dial units.

To sum up, 1,000 operators and supervisors had to receive training in one form of dial operation or another.

As I mentioned before, this gave us a good sized headache because no operating force today has any slack in it. As a result, most training was done on an overtime basis. By that I don't mean that an operator would receive her training after a hard day at the office, but rather that someone had to be brought in on an overtime basis to fill in behind the girl who had gone to the dial school.

Our first task in the training was to train those who were to do the training. No one in Rochester was equipped to do this. Fortunately, our good friends in the New York Telephone Co. at Buffalo, had anticipated our needs and issued an invitation to send our key people to them for training at Buffalo. We very happily accepted. Six people were selected to receive this training. These consisted of four in-

J. W. HUNTER and PAUL WINANS (in booth) of the Sherron Metallic Corp.

structors from our operators' training school and the chief operator and evening chief operator of the new dial office. It was with considerable reluctance that we chose people from our training school because that had the effect of reducing the intake of new operators to a trickle and every traffic supervisor knows when the flow of new operators stops, the well goes dry very quickly at today's turnover rates. However, we knew that operators replaced by the dial exchange would be available after cut-over for work in other manual offices, so we took the gamble.

These instructors spent as I recall about six weeks in Buffalo absorbing as much as they could about dial "A" board operation. That seemed to us to be the big job ahead. Training girls to operate "Call Indicator B Positions" and the key sets on the "A" positions seemed simple enough to handle ourselves without asking outside help.

Left to right: T. C. MACOUBREY, St. Paul, Minn.; P. M. FERGUSON, Mankato, Minn., and S. A. BROOKS, Page & Hill Co.

All dial "A" board training was done right at the new switchboard. The board was wired for training purposes by the supplier, to our specifications. Everything possible was done to simulate the conditions which would obtain at cut-over. We were particularly fortunate that a large section of the dial machine was ready for operation two months before the cut-over. This enabled our instructors to throw in calls and observe how their students handled the various types of calls.

Seventy-five girls, selected mainly from the offices replaced by dial, were given the full training course which took four days to complete. A two-day course was given each girl. At the end of the two days she was given a text book so that she could keep fresh in her mind the various phrases she was to use. Two weeks later she was brought back for another day's review and as close to the cut-over as possible, she was given another full day's review. Those who were slow to grasp the work were given more instruction time and it was seen that every operator was throughly indoctrinated before the cut-over.

The job of training call indicator operators and "A" board operators was done in the several manual offices. Test calls were delivered from and to the dial machine for a period of six weeks prior to the cut-over. By the time of cut-over, the operation of these facilities was an old story to our manual operators and they proved it by operating like veterans during the days immediately following the cut-over.

MANAGEMENT AND ACCOUNTING

By R. A. PHILLIPS
President
Central Telephone Co.

I COULD, perhaps, facetiously interpret the subject assigned to me as "What Management Wants from the Accounting Department or Would Really Like to Have from the Accounting Department." That would make it quite simple, I am sure. I would suggest a balance sheet of the company showing not less than a current ratio of 4-1, the capitalization made up of one-third debt, one-third common stock, and one-third surplus; perhaps a reserve for depreciation of about 25 per cent of the plant.

And when we get to the earnings statement, why not desire an operating ratio of about 50-50 with interest earned at least 10 times and while we are at it, a 10 per cent return on the common stock and surplus.

Then, again, the subject might be considered from the standpoint of "What We Have Been Getting from the Accounting Department." It seems to me that has consisted largely of reports indicating skyrocketing inventories, a cash account that seems to be melting, ever increasing gross revenues but less net revenues to support an even greater and rapidly growing capital structure.

However, these are all things having to do with results that I am afraid we can hardly interpret as being responsibilities of the accounting departments. On the contrary, it is proper, and it is to be expected, that you will always deal with facts, properly recording them and rendering intelligible statements in regard to them.

While, perhaps, not first in importance, I would like to mention what seems to me to be an item worthy of your consideration — the necessity of always maintaining a patient and understanding attitude toward the other departments of the business and toward management itself. While the practice of counting and keeping records is very old, indeed, dating back to ancient times, such as the Chinese bead counter, yet as business has become more complicated, accounting has necessarily become more involved and intricate. As a consequence, there are a great many phases of your work and your problems that are not too well understood by management people. Therefore, it behooves you to have a patient attitude when explaining and interpreting accounting procedure to other departments and the management.

You cannot assume that others in the associated departments appreciate your problems as fully as you do. Keep in mind the man who was browsing in a second-hand store one day and when seeing a valuable antique chair, asked the price. He was quoted $10, but stated that he should get more because he paid $25 for the chair himself. The man naturally asked, "How can you make money that way?" and the reply was, "Oh, that is easy. I merely enter it on the wrong side of the ledger and my bookkeeper never finds it out."

This is not as ridiculous as it sounds as representing an illustration of management's misunderstanding of accounting.

The accounting department is very closely related to the plant, traffic, and

R. A. PHILLIPS

commercial departments and, consequently, patience and understanding in dealing with those other departments is of prime importance. Many times I have seen a tersely or an unfortunately worded letter from the accounting department to the field operating forces completely demoralize the effectiveness of operating personnel for days. Have you ever heard the accusation that letters from the accounting department put the operating people in a fighting frame of mind? If so, then this is certainly something deserving of the very closest attention from all individuals in your departments.

You must take care not to adopt an attitude that the other departments exist only for the accounting department. If anything, I would say the accounting department exists for the aid of other departments and as such is primarily expected to record and report all of the activities and results of the other departments. Depending on how you handle a few of these matters, you will make a contribution to the success or failure of the overall business venture.

So, I feel that you have quite an assignment in properly interpreting your work, your functions, and your problems to the other departments of the company.

Naturally, the usual things that occur to one when thinking of what management desires or expects from the accounting department have to do with facts and statistics. The substance of your business has to do with facts accurately recorded and, in turn, accurately interpreted. The facts should show the status of the business at all times and the effectiveness of the policies being pursued by management and the company personnel. Such facts, in addition to being accurate, should be presented on time; in sufficient time, in fact, so that they will be of some good. Facts, to be of any use, should be timely and intelligible. I am sure a great deal of your time and effort is pointed in the direction of this type of accounting department management.

However, rather than describe a lot of statements and reports with which you are probably more familiar than am I, I would prefer to mention a few items of importance in regard to your relationship with management about which you, perhaps, do not think of as often as you do the matter of recording facts.

First, let me say that your department, or at least certain individuals in your department, sit in a very enviable position in regard to the opportunity of discerning trends and the successes or failures of management decisions and policies. Your billing departments are the first to know of the total overall gain or loss in stations and revenues. Likewise, your disbursement departments are first to be aware of increasing or decreasing expenses. A running examination of such results, even as they are being recorded in your departments, could be very helpful in assuring timely action looking toward improved operations. Certainly, someone in your department should have a feeling of responsibility for the success of the overall venture, very

similar to that of management itself. It is entirely possible that special reports that might be required in regard to such matters are even more important than the usual and regular accounting reports. Yes, indeed, the accounting department supervisors and managers should consider themselves fully as responsible as management itself for helping to create and bring about successful operating results.

Then there is the matter of economics which relates to accounting just as it does to other phases of the business. It doesn't take too much of an expert to build up a large, and perhaps even cumbersome department of people. However, it does take a real accountant or administrator to put together a unit that can produce the very most for the least cost.

Under this phase of your work, certainly the matter of new and improved methods should be mentioned. New labor-saving devices are coming on the market each year and yet it would be unsafe to say that all accounting departments should adopt all of the latest and newest machines and equipment. They must be justified. They must be viewed from not only a short range standpoint, but also with an eye to the long range.

The matter of centralization or decentralization in accounting procedures is an important factor and one worthy of a great deal of your time and attention. I have many times heard this point debated between strong proponents of centralization and ardent followers of decentralization. For instance, it is an important decision to make as to how many offices should be maintained in regard to revenue accounting and billing. The matter of centralization can be overdone, resulting in long delays because of distances, errors and incomplete reports because of the accounting being too far removed from the field of actual operations. On the other hand, there are great economies in the centralization of accounts. It would seem to me that one of the things that management expects from your department is a proper decision in regard to the most economical and effective administrative organization necessary for the performance of the accounting work.

Another thing that I feel should not be overlooked is the fact that in many instances, the personnel of your departments reside and carry on their daily activities in a community served by the company. All employes, whether in the accounting department or some other, should become thoroughly acquainted with the service policies of the company and the reasons for such policies. It seems to me that it would be highly disheartening to a telephone subscriber, when in a conversation with an employe of the telephone company, to find that the employe could not answer almost obvious and simple questions in regard to the rendering of telephone service.

How many of you know the rate charged for service in the community in which you live? Surely, the accounting department should not assume that the entire relationship of the company with the customers is an obligation and duty of the commercial department. It has been properly said that the customer's opinion of the company is largely formulated by contacts and association with the personnel of the company. The employes of the accounting department have fully as great a responsibility from a civic standpoint as those of the commercial or plant departments. It is essential that they be good citizens of their community, participating in all those activities that tend to improve the community itself. I cannot imagine a more effective force looking toward the success of any utility than to have its personnel, even to the clerks themselves, well thought of and highly respected in the community in which the utility is rendering service. It is a matter on which it would be difficult to place too much emphasis.

Then, I also like to think of the accounting department as a possible source of good material for promotion to the most important positions in the company. The very heart of a company's business is centered in the accounting department. It is there that facts are available in regard to how the product is sold or how the service is provided, the costs of rendering the service, and even more important, it is there that it can be determined whether a practice or policy is a successful one or a detrimental one to company progress. I fully appreciate that you cannot hire every person with the thought in mind that some day he or she will become the president of the company. I am afraid that to do so would be a great hindrance in getting your work done. Furthermore, it would probably create too much turnover, as such people would likely become discouraged with their progress and go to that employment that would permit more rapid advancement.

Nevertheless, some eye should be kept on those attributes of an individual that do not necessarily involve their ability in performing strictly clerical or accounting duties. The accounting department should be a fine training ground for individuals with outstanding personalities, acute appreciation for human relations, and perhaps even a mechanical bent. This would make them adaptable to management positions in other departments of the company. I like to think of the accounting department as a source of real prospects for promotions into the overall management field.

MODERN ACCOUNTING MACHINES

By O. M. WESTRUP
General Auditor
Illinois Consolidated Telephone Co.

WHEN the title for a paper is assigned in advance of its preparation, one of two things usually happens. Either it is too specific to provide an interesting subject or so general that one hardly knows what to talk about. In this case, it is the latter. Think of it—"Use of Modern Machines in Accounting." That really covers a lot of territory. It is my intention to discuss briefly some of the accounting methods and machines which are being used successfully in the telephone business. Many of the procedures are not new in the sense that they employ so-called modern machines, but they have been developed to meet the particular requirements of telephone accounting.

The fundamental principles of telephone accounting are the same as those underlying other forms or types of accounting. Minor differences which do exist are confined for the most part to details and do not materially affect the end result. Insofar as the details are concerned, all telephone companies have more or less the same problems. It is only natural, therefore, to find a certain degree of uniformity in the methods employed for the solution of these problems. This uniformity comes about not only because of the nature and requirements of the business, but also as a result of meetings such as this one. . . .

I do not wish to imply by this that all companies, regardless of size, could or even should apply exactly the same

methods to their accounting operations. They should, however, be alert to any changes or new developments which might have an application to their business and be in a position to determine the relative merits of the proposition. I know, of course, that some methods have been designed particularly to cope with the problem of mass production. Machines have also been developed to implement these methods. Most of you are familiar with them and many of you are using them in your business. While machines are being used quite extensively, there are still many companies that are not using them, either because they have not been convinced that the expenditure is justified or have been content to continue with manual methods.

Any change in system involves considerable thought and planning and unless the changes are carefully planned, dislocations are certain to be experienced. If the dislocations are to be avoided, the planning of system changes must necessarily receive the most careful study. Currently at least the time of personnel available for this assignment is being utilized by other activities. Projects such as rate cases and financial operations are important at the moment and are entitled to high priority. Needless to say, these duties draw heavily upon the time of the accounting department. The result is that our accountants have less time to devote to "system changes."

An aggressive accounting department will find a way to overcome these difficulties however, even if it involves the employment of outside assistance. Many public accounting firms are staffed with specialists who can be relied upon to make an appraisal of your situation and render an honest opinion concerning the extent to which machines could profitably be employed in your business. Smaller companies whose operations are not of sufficient size or proportion to maintain trained accounting personnel on a full-time basis, too, have their difficulties. To them, it might be appropriate to suggest that information is usually available and in many cases actual assistance may be obtained from nearby connecting companies.

It doesn't necessarily follow that all companies, regardless of size, have an application for machines in their accounting system. There are various operations to which machines may be adapted and in some cases different types of machines have been developed to perform the same function. It remains to be determined just which operation should be converted from manual to machine and at the same time a decision must be reached as to the type of machine which can be expected to turn in the best performance.

When such a conversion is contemplated, there are primarily two things which should be taken into account.

First in importance undoubtedly involves a determination of the cost of performing the function by machine and a comparison of such cost with the actual cost of manual operation. Any such comparison assumes of course that manual operations have first been developed to the highest maximum point of efficiency.

Secondly, there should be taken into consideration any improvements in the quality of the work resulting from machine operation, particularly as it relates to the customer's appraisal of our service. Only with all phases of our operations geared to meet those tests can we be certain that the service which we provide will always measure up to the now familiar slogan which characterizes the telephone industry, "the best service at the lowest possible cost consistent with the financial safety of the business."

It would be impossible to say just how far each company should go toward mechanizing its accounting operations. I would like to emphasize that there are certain benefits to be derived from such a program and I recommend that they be thoroughly investigated. The reasons are more or less obvious. First, of course, is the necessity of stabilizing the cost of operations in a period of rising labor costs. This can be accomplished only by reducing the amount of labor required and substituting in its place expense items of a fixed nature such as depreciation of equipment. Then, too, there are the benefits that normally accrue from doing a job better.

It is generally recognized that statements, when prepared by machine, present a much more business-like appearance than those prepared manually. This has been responsible for the installation of machine bookkeeping systems by many business concerns both large and small. Statements prepared in this manner are ordinarily balanced against certain accounting controls and usually they can be depended upon as being correct. Generally speaking, the results bear out this conclusion. Statements prepared by machine are more apt to be free from error than those prepared manually. A billing system which earns for its company the confidence of its customers is making an important contribution to the cause of maintaining good public relations. We should strive to improve it in every phase of our operations.

It is my observation that machine methods have met with general acceptance in the telephone industry, particularly in its revenue accounting operations. Revenue accounting, as it is known, includes the preparation of customers' bills. While the size of this job varies in accordance with the size of the company, it requires for each company the employment of more labor than all other phases of accounting combined. It is only natural therefore, that machines should be employed, whenever possible, to perform this time consuming function.

The machine which appears to command the greatest interest at the moment in this particular field is the telephone billing machine. This machine prints the individual amount for local exchange service, directory advertising, other charges or credits, and balance on the regular telephone statement. Each amount is printed in quadruplicate on horizontal lines spaced to conform to the various sections of the bill.

The bill is approximately 17 ins. in length and three and one-half inches in depth. The customer's portion of the bill, which is six and one-half inches long, appears on the left hand side of the form. A cash stub, commercial department stub, and accounting department stub are each approximately three and one-half inches square and appear in that order to the right of the customer's portion of the statement. These stubs are separated by a perforated line so that they can be detached after the run is completed on the telephone billing machine. The machine is designed so as to accumulate separately the aggregate amount of each type of charge or credit entered on the statement. Upon completion of the billing for each exchange, group or subdivision of accounts, the machine is cleared and the total of the various amounts posted is recorded in connection with the operation. The totals are then compared with control figures previously established and if found to be in agreement, the stubs are detached and the bills placed in line for distribution.

If the amounts are not in agreement with the predetermined figures, it is necessary to effect a reconciliation of the difference.

This comparison will show whether the difference is in local exchange service, tool service, or in one of the other groups. Having the amounts broken down into groups according to the type of charge is a very important factor in the process of reconciliation. It defines the area in which an error has occurred and thereby enables the operator to locate the error with a minimum of time and effort.

The source of the amounts posted to the statement is referred to collectively

as "posting media." The basic element of this media is a card form size 4 ins. x 6 ins. called the "Record of Service and Equipment." A separate card is maintained for each customer's account showing the name, address, and telephone number identifying the account. On the card there is recorded for each item of service and equipment the date of installation or removal together with the cumulative total of all charges including federal excise tax. The charge for directory advertising is also recorded on this card either in detail on the back of the form or the amount only may be shown in a separate column on the front side. This card constitutes a record of the regular recurring charges and is used each month in the billing process. The only changes made in these cards are those which result from the handling of service orders. The remaining elements of the posting media are in the nature of variable items which require individual computation each month. They include charges for toll service, local exchange service for fractional periods, service connection charges and arrearages from the previous month's billing. All of these records are kept in numerical sequence according to telephone number so as to conform to the order in which bills are addressed in the process of printing.

The material comprising the posting media must be assembled simultaneously for handling by the billing machine operator. A posting tray especially designed for the material to be used will facilitate its handling. The speed of production on telephone billing machines is usually expressed in terms of the number of completed bills per hour. The number of bills produced per hour will vary necessarily, depending upon the average number of entries or lines per bill and the relative experience and ability of the operator. My experience has to do with work which averages 2.78 lines per bill. Operators with experience ranging from six to 12 months will average approximately 425 bills per hour. Some companies experience even better results.

A suggestion for increasing production which recently came to my attention was the intersorting of posting media. This process involves the filing of toll statements and other posting media in the record card file so that the operators will have the information for posting in preassembled form. This method is calculated to increase the speed of production of the billing machine operator but obviously requires some additional time in getting the material ready for posting. I am not prepared to say whether or not there is any overall saving, but those who have had experience with the method, claim for it a substantial increase in their production. It might be well worth your consideration, especially if your machines are carrying a heavy load and the volume of work has reached the stage where the purchase of additional equipment is being contemplated.

Another machine which has met with considerable favor in revenue accounting circles is the electric toll biller. The preparation of toll statements is an important function in the process of telephone billing and this machine is well adapted to the operation. The machine differs little from a regular typewriter except for certain special features which it employs. Of particular interest are the logger type keys whereby commonly used amounts such as five, 10, 15, 20 or 25 cents are printed with a single stroke of the type bar. When striking the 20-cent key, for example, the two and the zero print in rapid succession and the carriage automatically returns and advances to the next writing line, all in one operation. Toll charges are listed in order by date showing the place called, in abbreviated form, and the amount of charge as indicated on the toll ticket.

The amounts are usually tabulated in two separate columns conforming to the two tax groups, with amounts less than 25 cents appearing in the first column and amounts of 25 cents and over appearing in the last column.

The carriage return and line spacer is fully automatic regardless of the column in which the amount is entered. Operation of the logger type keys return the carriage from the first amount column. Likewise the last digit printed in the last column automatically returns the carriage from that position. The carriage is completely controlled from the key board, no manual handling being required whatsoever. Individual keys, electrically operated, control the tabulating, backspacing, line spacing, and carriage return features.

The machine is equipped with a line or key stroke counter which automatically registers the amount of work done. Billing of 500 to 600 tickets per hour is not uncommon on the electric toll biller while some operators have been known to bill 800 or more tickets per hour. It is more desirable to use continuous bill forms although single bill forms are sometimes used. Continuous forms require less handling which in turn is reflected in higher production figures.

Key driven type calculators are usually employed in adding the charges on toll statements. The operation is fast and the use of charts will facilitate calculation of the amount of federal tax to be billed. A separate run showing the total of the tickets for each account serves not only to check the total amount shown on the toll statement but also proves that the items have been listed correctly. The total number of hours required for adding and verification is approximately the same as the number of hours spent in billing tickets on the electric toll biller.

A considerable amount of labor is also required in connection with the sorting and arrangement of toll tickets preliminary to the billing operation. A special type of desk known as a sorting rack recently has been developed to facilitate this work. It consists of a stand on which the sorting racks are mounted. Two operators may share one stand working opposite each other. The racks are separate, however, and are mounted on opposite sides of the stand. In each rack there are 100 compartments each of which will hold approximately 1,500 tickets when completely filled.

The process of arranging tickets by date and telephone number order with sorting racks requires only two complete handlings of the individual tickets. Starting with the first date in the period, the tickets are sorted into 100 groups developed from the two right hand digits 00 to 99 inclusive. Each succeeding date is sorted in the same manner with the latest date being filed to the top of each stack. This operation is referred to as the first or right hand sort. At the end of the period, the 100 groups are removed from the rack and the second sort is started. The second sort is made separately for each of the 100 groups coming out of the first sort, starting first with the group ending in 99. The tickets for each of these groups are then sorted according to the two left hand digits 00 to 99 inclusive. At the end of the second or left hand sort the groups are assembled and the tickets are then in telephone number order and are filed chronologically by date.

Less handling of the tickets will be required if the full month's activity for each exchange can be accumulated and left in the rack until the end of the first sort. This, however, is not ordinarily practicable. Maximum use of the equipment requires separate storage facilities for tickets only partially sorted. This method is quite satisfactory providing the tickets are filed systematically and are properly identified. A series of guide cards is ordinarily suitable for this purpose.

Although I have had no actual experience with this equipment or method of sorting, I must confess that I was impressed with the idea. The results will bear watching, however, in order

to determine whether or not the new method actually requires less labor than the conventional method of sorting and arranging toll tickets.

No discussion of revenue accounting would be complete without some mention of the stub system. I am sure, however, that stub accounting needs no introduction to this group. It has been employed successfully for many years and continues to be recognized as the foundation for the most modern accounting systems. Stub accounting can be adapted to most any situation whether or not the use of billing machines is contemplated. It requires only facilities for duplicating the name, address and other fixed information on the several stubs of each bill. Machines for duplicating names and addresses on customers' bills are well within the reach of any company whether it be large or small. They range in size from small hand models to the heavy duty motor driven bill printing machines.

In most cases, the bill consists of four parts, two of which go to the customer and two are retained by the company. The stub which is attached to the customer's bill is returned to the company when payment is made and is used in balancing cash receipts and in the posting of payments on the company's records. Of the two stubs retained by the company, one serves as the business office record of the account and the other is used to support the accounting controls maintained in the revenue accounting center. Any small company having only a single location could probably get along very well with a three-part bill providing the commercial and accounting department operations are properly coordinated.

A situation of this kind suggests the possibility of utilizing a standard adding machine for the billing operation. The only special feature required would be a wide carriage equipped for horizontal tabulation. Such a machine could also be used for other general purposes and its cost therefore would not be prohibitive. This method is being used by some companies and is well worth the consideration of any company whose operations are not of sufficient size to warrant the investment in a regular telephone billing machine.

Another innovation which has met with considerable favor is rotational or cycle billing. Under this procedure, the accounts are divided into groups and a different billing date is assigned to each group. Each of the groups relates to a different period or cycle of time and any number of cycles may be established to cover a month's activity. Although the usual number of cycles is six, there may be more or less depending upon the work load and the requirements of the business. For cycle billing it can be said that it tends to eliminate peak loads by distributing the work more evenly throughout the month. Moreover, it facilitates a higher degree of specialization in employe assignments which, in turn, is calculated to increase productivity on an over-all basis.

As in all things, accounting methods require study and consideration, particularly in the light of your own situation and how your operations will be affected thereby. Ideas and suggestions which stem from systems used by other companies are always helpful but they usually require some modification —changes necessary in order to conform to your particular requirements. Methods should be under observation constantly in order to make certain that they are keeping pace with the growth of your business. You must know, of course, that there is no hard and fast rule for making this determination. There are honest differences of opinions as to the best accounting methods. Likewise, there are differences of opinions as to the best types of machines and equipment. It is relatively unimportant that these differences be resolved. It is more important that the opinions be based upon fact and study.

PREPARING ACCOUNTING EXHIBITS

By E. J. WARD
Telephone Service Co. of Ohio

BY WAY of opening the discussion of this important function of the accounting department, may I say that I think the accounting department of any telephone company should have a lively interest in the end result to be obtained in the proceedings indicated by the preparation of the accounting exhibits herein referred to. As accountants our interest should be more than the purely academic one of preparing schedules of figures in support of the company's application.

We hear many speeches . . . urging the telephone industry to put its financial house in order by adequately financing itself and then going out after sufficient rates to properly provide for the continuity of good telephone service. In the success of this vital program the accounting department should be very much concerned. It is our business.

In speaking on this subject I desire to confine my remarks to that phase of the problem that is usually faced by the smaller companies of our industry. The larger companies through their frequent contacts with this problem are entirely familiar with the required procedure. For the smaller company, however, the job of preparing these exhibits may seem to be a well-nigh impossible task. In many such instances the accounting department of the company may consist of only one person —often the manager or his wife keeps the books of the company. To them the subject of refinancing or rate making is appalling in the aspect of the accounting data required. Because of this feeling, born of inexperience and unfamiliarity, these companies many times put off or postpone indefinitely the job of making their telephone company a sound business enterprise that is geared to do business in a modern world.

It is difficult to discuss this subject technically at a convention to which have come delegates from all of the 48 states. The requirements of the regulatory bodies of these several states are not necessarily uniform. For example, in some states the original cost of the property is the basis for the consideration of new rates while in other states the reproductive cost new less observed depreciation forms the rate base. Some states may require a detailed appraisal while in others a statement of valuation prepared by a competent engineer may suffice.

In any proceedings involving either refinancing or adjustment of rates, the manager of the small telephone company should first seek out the executive head of the telephone association of his state. An hour or two spent in conference with this capable individual can prove to be a very valuable investment. The experience of the state association executive will be valuable in determining the course of procedure to be followed in the refinancing or in the rate case.

The next step should be to arrange for a conference with the head of the regulatory commission of your state. If possible, this conference should be arranged so that the state association executive can also attend. A very frank discussion should then ensue.

The manager of the telephone company should lay before the commission chairman the full details of his problem, keeping in mind that the regulatory commission is just as much interested in the sound business health of the telephone company as it is concerned with the public being furnished an adequate service at a reasonable rate.

Perhaps the problem of the telephone manager is one that involves the issuing of stocks to provide for maturing bonds or the reverse situation may obtain in which the company desires to issue bonds for the purpose of calling a certain class of stock. Yet, again, the problem may be one of providing funds with which to make needed plant improvements.

This latter problem is one that is presenting itself in increasing importance for the attention of the telephone manager. Telephone plants must grow to meet the demands for more and more service which the public insists upon receiving. Here the accounting department, whether it be the company bookkeeper or a fully developed arm of the telephone company organization, can and must play an important part if our industry is to meet the challenge of the times.

Most telephone companies make their expansions first and then seek to finance the improvements. The temporary financing is generally provided out of the company's own treasury, representing the amount of earnings reserved for a depreciation provision and hence not available as dividends on the company's outstanding stock. This source of cash is usually soon exhausted and is often supplemented by short term loans from banks. In any event, there soon comes the time when the company must refinance these improvements to its plant. This process is known as capitalizing net additions.

Keeping in mind the admonition set out above of having a heart-to-heart talk with your association and your regulatory commission, you will then learn the necessary steps to be taken in refinancing these expenditures. In most states the requirements are quite simple. A formal application is drawn asking the regulatory commission to approve the permanent capitalization of the expenditures that have been made. To this application is attached an exhibit showing the amount of net additions that have been made by the company. This exhibit should be prepared to show these net additions by years for the period covered by the application. It is just as simple as that. Of course the exhibit must be based on the actual additions and retirements that have been made in the several plant accounts for the period under review. Good plant accounting is a prerequisite for the proper preparation of this exhibit.

M. E. VAIL (left) and W. C. STREHL, of the Suttle Equipment Co., photographed in their display room.

After the application for capitalizing net additions has been properly filed, then follows a period of investigation by the accountants or engineers of the regulatory commission. After the investigation by the representatives of the regulatory commission, an order is issued authorizing the capitalization of such amounts as are found to be in order for the purpose of reimbursing the company's treasury for expenditures previously made in the course of expanding the plant and property of the company. Now comes the problem of determining how this capitalization should be done. Generally, the regulatory commission retains jurisdiction of the case until such time as the telephone company determines what type of securities it desires to issue. The final order of the commission will then authorize the type of securities that it is indicated are in the best interests of the company to be issued.

The telephone company must now find a market for these securities. This market may be either to the public, which may or may not include existing security holders, or it may be a matter of selling the securities to a financial institution. The latter course generally is followed where the securities to be issued are in the form of bonds.

In preparing the market for the securities, it will be necessary for the accountants of the telephone company to set up pro forma income statements showing what would have been the experience of the company during prior periods of its operation had the proposed financing been in effect. Preparation of these exhibits is simply a matter of making a copy of the previously prepared income statements and giving effect to the amount that would be required to pay the interest or dividends on the new securities. These comparative statements are usually for the previous five-year period. It generally is advisable to also reconstruct the balance sheet to show the inclusion of these proposed new securities. Sometimes it is necessary to prepare supplemental data in addition to the financial statements required. Frequently asked for is an exhibit to show the growth in the number of stations served by the company over the past several years. Exhibits showing the proposed plan of future expansion of the plant and property of the company are also often helpful in interesting prospective purchasers in the securities of the company.

The exhibits required in rate case proceedings are also comparatively simple and easy of preparation if the requirements of the regulatory body are first ascertained and the exhibits compiled in accordance with these requirements. Those exhibits generally required are cataloged as follows:

(1) *Valuation Statement.* As has been stated above some statement of valuation either in the form of an engineering opinion, a detailed appraisal or a statement showing the original cost of property by accounts and brought up to the date certain of the rate case must form the initial exhibit of any rate case application.

(2) *Income Statement.* An income statement for the latest 12 months available showing the amount of earnings available for rate of return based on the company's present income.

(3) *Rate Study.* Next should be prepared an exhibit which is commonly called a rate study. This is compiled by multiplying the existing number of stations of each class of service by both the present and the proposed monthly rate. The difference between the total monthly revenue produced by these two computations is then projected to an annual basis. This then becomes the amount of estimated increased gross revenues to be expected if the new rates are allowed and put into effect.

(4) *Adjusted Income Statement.* The company's income statement, mentioned above, is then adjusted to show the amount of the proposed increased gross revenue. This income statement must be further adjusted to show the

(Please turn to page 122)

IN THE NATION'S CAPITAL

BY FRANCIS X. WELCH
WASHINGTON EDITOR

Higher rate of return for utilities in order for them to attract equity capital to expand plants is urgent need. . . . Walter J. Herrman's study on utility earning requirements reviewed.

A GOOD many authorities of one type or another have been turning their attention to the subject of rate of return on invested capital for public utility companies, including the telephone industry. At the recent convention of the United States Independent Telephone Association two outstanding state commissioners, the mayor of Chicago, and the president of the United States Chamber of Commerce—certainly a varied cross section for a single meeting—expressed concern over the ability of these regulated industries to continue the attraction of necessary capital for plant expansion in the absence of adequate revenues.

This, of course, is simply corroborative of a growing list of economists, lawyers, accountants, editors, engineers, and public utility executives who realize that the cost of operating these vital public services is increasing faster than rate relief can offset shrinkage of earnings.

This rising tide of more alert and responsible thought as to what is steadily drifting into a serious situation for all public utility industries, is in marked contrast with the reactionary attitude of some of our more doctrinaire regulationists, who steadfastly hold to the theory that any rate of return beyond the lowest cost of money experienced over the past few months or few years—as based on original cost less depreciation—is too much money for a utility company to collect from the public.

The fact that the "cheap money" period of bygone months is a thing of the past, and no longer an accurate indication of the cost of rising capital in the months ahead, leaves them cold. Suggestions that rapidly increasing prices for materials, labor, and the general cost of operation should be the basis for a thorough re-examination of the original cost rate base doctrine, itself, are scouted as some kind of economic heresy.

But whether any of us like it or not, the plain fact is that, as a result of these low earnings prospects largely brought about by the oppressive theories on utility earnings of the Federal Power Commission, aided and abetted by parallel indications from the Federal Communications Commission, it is becoming next to impossible for utility companies to sell common stock except at prohibitive cost for the money obtained.

The managing director of the American Gas Association, H. Carl Wolfe, summed up the situation quite succinctly at a press conference held in Atlantic City during the recent annual convention of the AGA. He said that "slavish adherence" by regulatory boards to low fixed rates of return for the gas industry has forced the gas industry to seek "cheap money" rather than risk venture capital through stock financing. Mr. Wolfe's remarks were made in answer to the recent discussion of the heavy debt and bond financing in the gas utility industry. The chairman of the Securities & Exchange Commission had pointed out at this same meeting that some natural gas companies are bonded up to 80 per cent of their capitalization.

A most impressive compendium of excerpts and abstracts from nearly 50 authorities on this subject (of re-examining utility earnings requirements in the light of the inflationary trend) has recently come to the attention of this writer. It is entitled "*The Impact of Inflation on Utility Earning Requirements*," a 110-page brochure, prepared for the use of the utility companies in the Commonwealth & Southern system. The author and compiler of this collection is Walter J. Herrman, well known in the Independent telephone industry through his former connection with the Gary Group, and now rate advisor for Commonwealth & Southern Corp. (20 Pine St., New York City).

Here are a few of the pertinent quotations selected by Mr. Herrman:

H. J. WAGNER, West Virginia Commission engineer: "This question of 'Original Cost' vs. 'Fair Value' as determined by the reproduction cost or some other method, is to say the least a debatable one on which most commissions and the regulated industries do not agree and perhaps never will at least as long as construction costs continue to increase."

• • •

PROF. SUMNER SLICHTER, Harvard economist: "In attracting equity capital, inventory profits do not count—the prospective investor wishes to know what operating profits the enterprise can earn. Nor is he interested in what rates present profits yield on plant and equipment bought at prewar prices. He wishes to know what return present prices and costs make possible on new and up-to-date plant constructed at present prices. Measured by this test present profits in most industries are too small—they do not permit enterprises to attract venture capital."

• • •

PROF. KESTER, Columbus University: "It is unsound and unheard of to keep a company's accounts neither on the basis of cost to it nor of value, but on the basis of the costs of someone else, for which the accounting company has no responsibility. Accounts kept on such a basis would be misleading to the public, to investors, to the company's management, to legislatures, to future regulatory bodies, to taxing authorities, and to the courts."

• • •

LEONARD SPACEK, partner, Arthur Andersen & Co.: "In 25 years spent closely associated with the industry, I have not found anyone who is willing to accept the responsibility of explaining why original cost is fair. Most of the reason underlying the advocacy of the original cost principle of rate making is limited to (1) citing authorities . . . that agree with that view; (2) that the rate base is stable and nonfluctuating, and (3) it is easy to administer as compared to reproduction cost."

• • •

HENRY C. HASBROUCK, Edison Electric Institute: "A point can be reached where the historical record of costs in

terms of the number of dollars involved will be so far out of line with the actual value of the dollars that historical costs will have no practical significance and might just as well be forgotten. I can readily illustrate my point by the experience of Germany during the postwar inflation."

• • •

R. C. RENO, editor, TELEPHONY: "The decreased earning power of the dollar must be taken into consideration by regulatory commissions. We all know that a dollar only buys one-half as much in terms of shoes, ships, and sealing wax as it did before the war. But the company's dollar and the company's investor's dollar has also deteriorated in buying power, just as much as the working man's dollar—in fact more, in view of our graduated tax policy."

• • •

GEORGE MAY, partner, Price-Waterhouse Co.: "I believe . . . that it (inflation) has made imperative measurements of income in which the positive and negative elements are expressed in terms of units of approximately the same purchasing power. This is quite a different question from that of using reproduction cost as the rate base."

• • •

J. F. OATES, JR., chairman, Peoples Gas Light & Coke Co. (Chicago): "The investor necessarily will look at the treatment which has been accorded in the past to capital invested in the plant of our industry as a means of foretelling what treatment he—the investor—can expect in the future."

• • •

DR. W. A. PATON, professor of economics, University of Michigan, and editor of *Accountants' Handbook:* "In a very real sense, then, the accountant who charges 1947 revenues with depreciation expressed in unadjusted 1935—for example—dollars, alongside of labor, materials, and other costs in 1947 dollars, is guilty of failing to recognize the plant cost actually, literally incurred. In a very real sense, moreover, the person who urges the substitution of replacement cost for recorded dollar cost is recommending adherence to actual cost more closely than he who insists on absorption of recorded dollars, of all kinds, without adjustment."

• • •

JOURNAL OF ACCOUNTING, October, 1947: "Management is faced with real problems which wholly negative advice will not help it to solve. The principal factor underlying advocacy of new depreciation policies is inflation. Management cannot be blamed for anxiety over the realization that costs incurred in 100-cent dollars are being amortized against income composed of 50-cent dollars."

• • •

G. L. WILSON's text on *"Public Utility Regulation":* "Varying the rate of return according to an index number so as to keep it constant in purchasing power is necessary with a fixed rate base. This, we believe, is the only practical way of reflecting changes in the price level."

"Oops! Now what business have you being on that pole, young man?"

• • •

W. T. HYDE, JR., address before the New York Society of Security Analysts: "Claimed to be the only fair and equitable and the only scientific approach to monopoly regulation, this specious (original cost) theory which has been nurtured by the Federal Power Commission under the guise of legitimate accounting regulation will effectively take the plant away from the owners and give it to the customers during a period of rising prices. It, therefore, presents a serious problem to investors and one which should make them particularly cautious in buying public utility equities in the event we enter a postwar inflationary period."

These are just a few samples picked at random in leafing through Mr. Herrman's study to support the conclusion that there is a growing body of intelligent thought in the United States which will not be put off in its demand for a more realistic regulatory approach to the problem of bringing utility earnings into line with the inflationary trend. It will not be put off by any smug declarations that original cost theory is sacred or is "well settled" or is the epitome of "sound accounting." All of these claims may awe the unsophisticated student of economics. But the utility management of today knows from plain experience that the investor's dollar, is not as easy to get as it used to be, in competition with other lines of business. Neither Supreme Court decisions nor doctoral thesis can alter that blunt fact.

Three charts are included in Mr. Herrman's book which show more clearly than words can describe the steady loss of investor confidence in the future earnings prospect of all kinds of utility companies, including telephone companies. One of these shows the allowed rates of return of public utilities as compared with the indicated cost of capital. This indicates an over-all average rate of return of slightly more than 6 per cent from 1943 to 1945, but with a sudden drop during the 1946 period to less than 5 per cent return at the beginning of 1948. Cost of capital, on the other hand (based on security yields) has been trending upward during the past year and now approaches 6 per cent, or 1 per cent higher than the rate of return itself.

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An equally impressive chart deals with the return earned (on net worth) of leading manufacturing corporations as compared with the allowed rate of return to public utilities since 1934. Again, utility rate of return averages just over 6 per cent to the beginning of 1946, dropping to less than 5 per cent in recent months; whereas *the return on manufacturing corporations, never less than 7 per cent during the entire period, has been rapidly rising since 1946 until it approached an average of more than 18 per cent at the beginning of 1948.*

One other chart, based on Standard & Poor's stock price indices, shows the lag of utility securities (20 selected utilities) behind the average daily closing prices on 50 industrial securities. This lag, which began back in 1934, has been growing steadily during the past decade so that the 1948 average shows utility securities lagging more than 50 per cent behind the prices of industrial shares.

Here is Mr. Herrman's own conclusion on the basic problem of fixing a fair rate of return during the current inflationary period:

"During periods of major price changes there is immediately added the problem of evaluation of depreciation and return requirements in terms of money purchasing power, and the degree of conflict is proportioned to the degree of the price change. Two opposite and extreme schools of thought exist—the first of which insists that utility earnings should be related to original investment in dollars regardless of changes in dollar values, whereas the second argues that earnings should be related to the value of the plant as measured by current dollar purchasing power. Each school has, at times, conceded various infirmities in the strict application of its extreme point of view, and the courts, in general, have carefully avoided endorsing any specific formula. In certain of its more recent cases, decided in the early forties, the U. S. Supreme Court has in fact subordinated all formulae to what it terms "a reasonable end result." . . .

"Rightly or wrongly, however, many regulatory bodies have, as a practical matter, interpreted these particular decisions of the Supreme Court as an outright disqualification of the use of the so-called fair value approach of rate making, and a consequent endorsement of the cost philosophy. Such an interpretation might have been unimportant in times of stable prices but coming as it did just prior to a serious decline in the value of the dollar, the effects have suddenly become of the most vital concern to the utility industry. . . .

"In defending their position, proponents of the cost theory cite these cases and others as though principles were thereby established for all time regardless of future changes in economic conditions. The inference is given that acceptance of the cost theory has become so general that it is futile to consider alternates. Actually, little or nothing in the way of fundamental argument is advanced, the procedure being to stress simplicity, to ridicule other methods by exaggerated illustrations of misuse, and by quotation of precedents that have in themselves no economic justification. Finally, the assertion is made that equal justice can be rendered by use of a cost rate base and a flexible rate of return predicated on earnings on investments in non-regulated industries.

"This claim is, of course, correct, but the joker is that although many commissions have chosen to use a cost rate base, they have failed to make any such rate of return adjustments, even though earnings on investments in other fields of business have at least doubled in the last decade. As a matter of fact, the trend in allowed rates of return has been *downward* as price levels have *advanced*."

What then is a fair rate of return for a telephone company or any other kind of a utility? One of the most exhaustive individual case histories involving an Independent telephone company—one which dealt in a penetrating and scholarly manner with every phase and factor of the "fair rate of return" —was the recent presentation of testimony by J. Rhoads Foster, economist of the New York University School of Business Administration, in the Blue Mountain Telephone & Telegraph Co. case before the Pennsylvania Public Utility Commission last month.

Dr. Foster's analysis is so important as a possible example of what can be done by other Independent telephone companies (by way of thorough rate case presentation) that this correspondent will, in a latter issue of this department, devote more space to a careful restatement of the points involved. Suffice it to say, now, that Dr. Foster gave his "considered opinion" that a rate of return of "not less than 7.25 per cent to be applied to a cost of reproduction new, less depreciation, rate base" would be a fair and reasonable return for the Independent telephone company involved in that case.

". . . Says his phone's out of order, wants a repairman who likes children and can work on the phone tonight from 8 to 12!"

Courtesy, Wisconsin Telephone News

QUESTIONS AND TENTATIVE ANSWERS

COMMERCIAL (Continued)

(6) Will toll messages be charged for at the station-to-station or person-to-person rate?

A. At the person-to-person rate; they may be filed, however, as person-to-person or station-to-station. The charge is the same in either case, i.e., person-to-person day rate with a minimum charge of 45 cents. There is no reduced rate period.

(Message toll rates apply to messages between a wire telephone outside a mobile service area and a mobile station, between a wire telephone and a mobile station in a different mobile service area, or between mobile stations in different mobile service areas.)

• • •

(7) What rate will apply to messages between two mobile stations reached through the same land station?

A. Eight message units will apply for the first three minutes.

• • •

(8) Will conference service be offered?

A. Conference service will not be offered initially. Experience with the service is needed to indicate how conference service might be rendered without causing serious delays.

• • •

(9) Can a dispatching terminal be used to originate or receive general service messages?

A. Yes, but not to or from one of its dispatching mobile stations.

• • •

(10) Can a mobile station that has been designated for dispatching service originate and receive general mobile service calls?

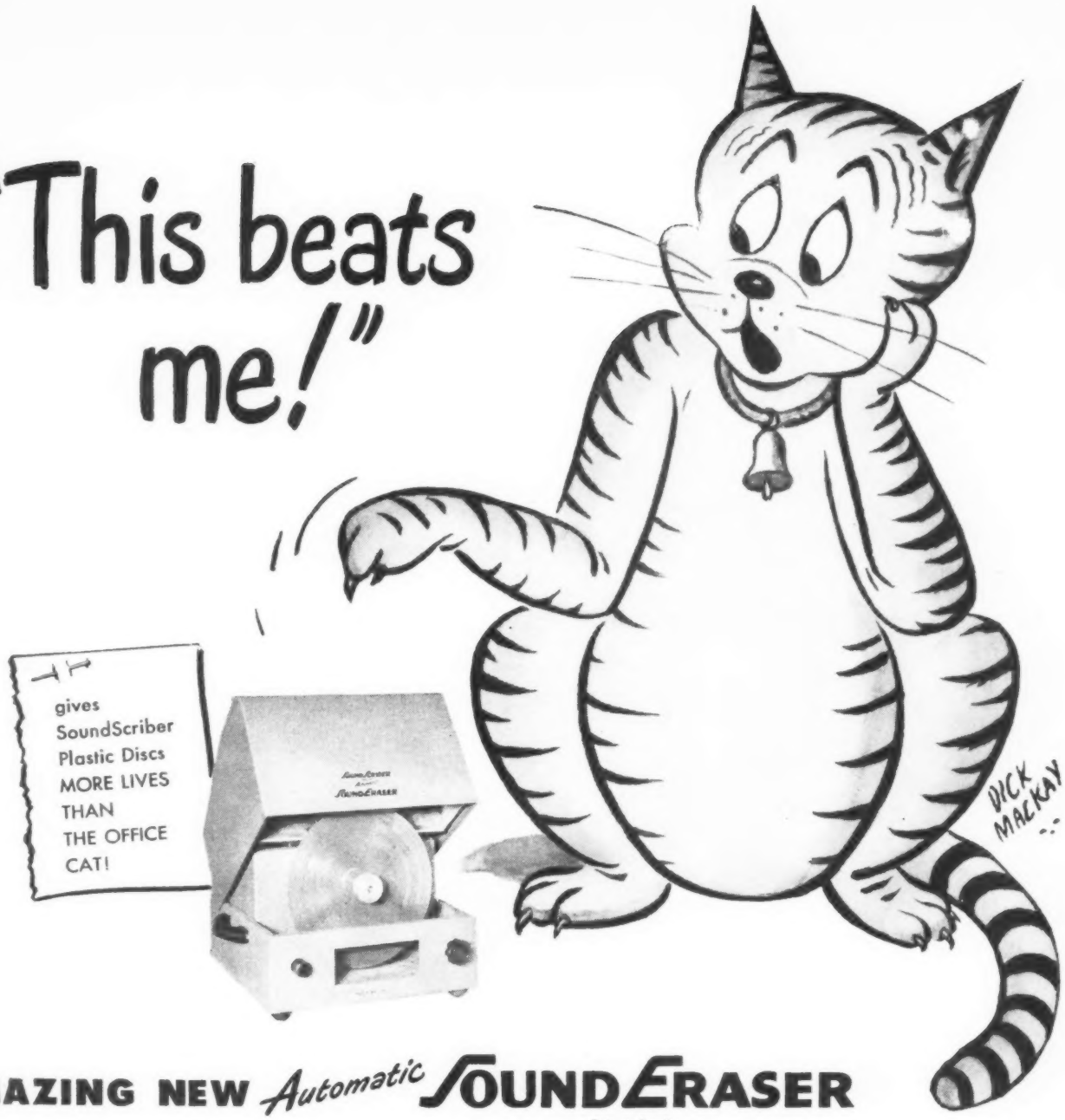
A. Yes, but not to or from its own dispatching terminal.

• • •

(11) Will a dispatching terminal be provided for one-way signaling service?

A. Not initially.

"This beats me!"



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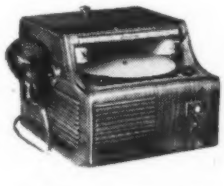

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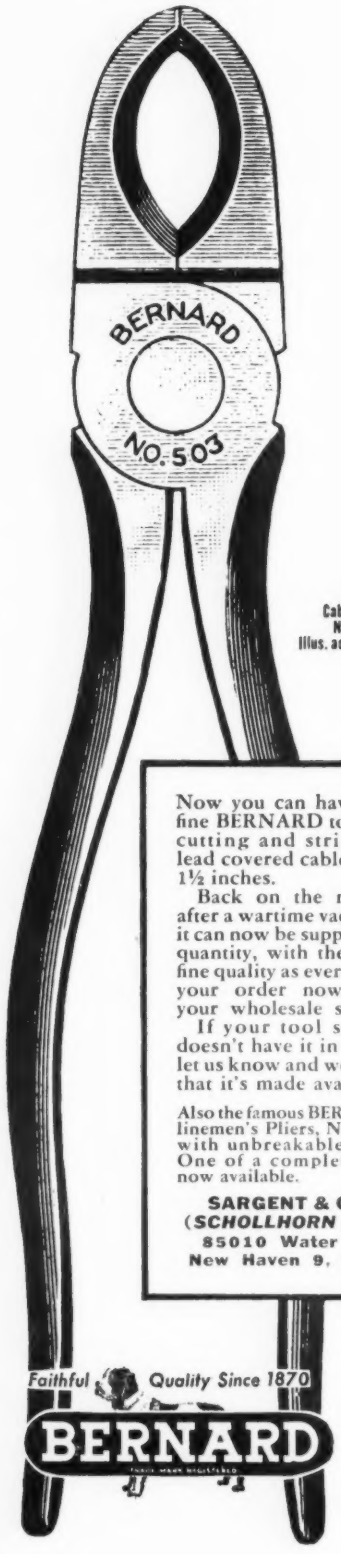

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BERNARD

Your Association In Action

(Continued from page 32)

During the next five years telephone companies must recruit and hold thousands of new employes whose services must be engaged in a competitive labor market, the tension of which is increasing year by year. . . .

And what is the future of this business of ours from the standpoint of employment opportunities and ultimate promotion? It holds out a great deal in the form of opportunity. There is Walter Gifford who served as a statistical clerk when he entered the business as a young man. He ultimately became President of the largest communication enterprise in the world at $210,000 a year. There is Leroy Wilson who started out as a news boy and a time clerk on an Indiana telephone construction gang. He is now president of the AT&T, and Mr. Gifford is chairman of the board.

There is the new Senator-to-be from Maine, Mrs. Margaret Chase Smith, who served as a telephone operator when she was starting out on her career some years ago.

The Independent branch of the telephone industry is replete with examples of opportunity. There is B. L. Fisher of Martinsville, Virginia, for example, who started out in the telephone business at 15 cents an hour, at the round of the century, repairing 35 telephones for the company that employed him. He is now president of his own company with more than 12,000 stations and revenues approaching half a million dollars annually.

There is John Wright of Jamestown, N. Y. who entered the business in a modest way as a young man, has succeeded remarkably well, and has added luster to the industry in many ways in addition to heading his own group of companies.

Many other similar examples could be given.

In terms of employment opportunities the future in the telephone industry should be even richer than the past.

In conclusion, let me say that we all know there are problems ahead. There will be unexpected shoals in troubled and uncharted waters. They will call for a high degree of leadership, of resourcefulness, of loyalty. Telephone companies have stood the test in a turbulent past. With the personal qualities possessed by those who man the lines, we may be sure that our industry in the future no less than in the past will acquit its obligations well, and will march on to greater and even more worthy goals.

Service Short-Cuts

(Continued from page 35)

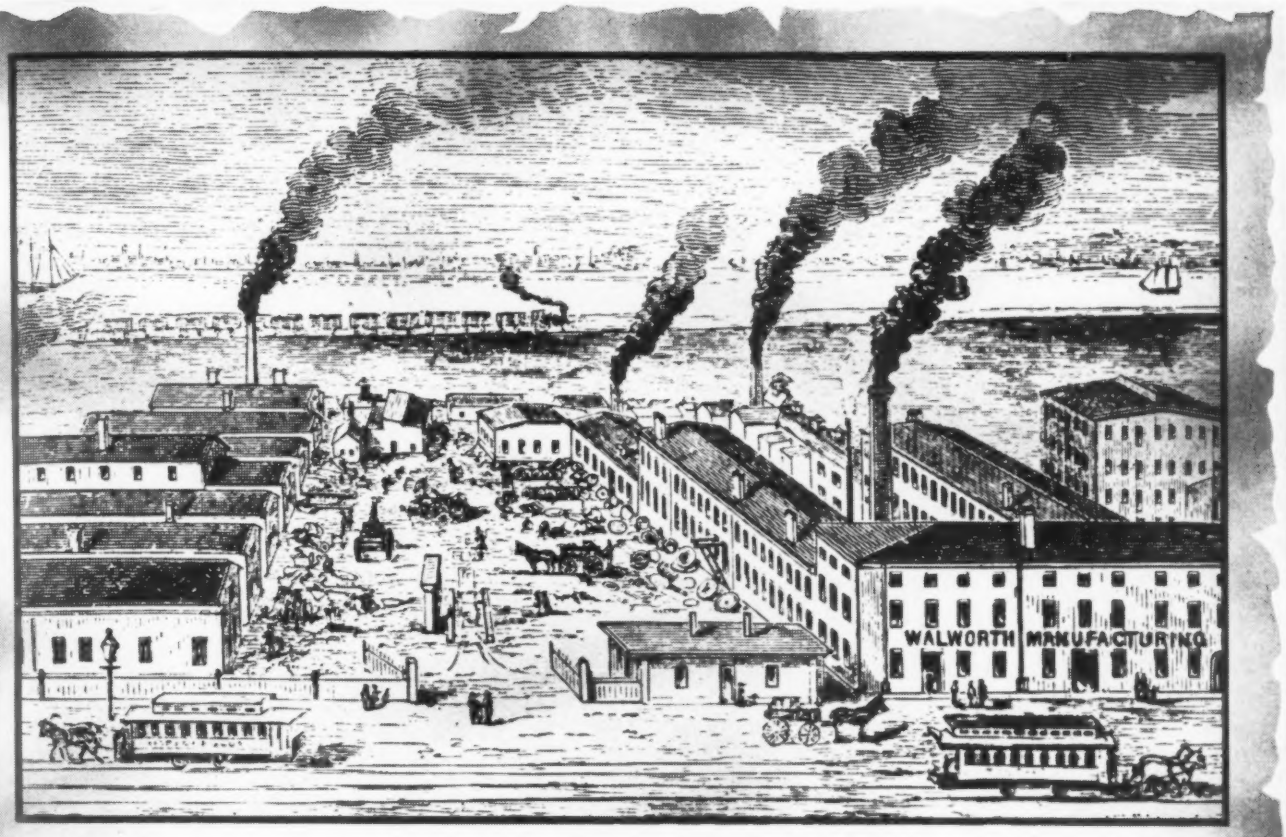
pense to the company, or ratepayer, a rate reasonably adequate for the company can be prescribed.

A troublesome situation frequently arises when a request for increased rates is met with a complaint of poor service. Under such circumstances, the Georgia Public Service Commission has said:

"Admittedly the service provided by the company is not what it should be in several exchanges and yet the company is not collecting sufficient revenue under the present rates to pay operating expenses in Georgia. While there is good and strong argument for denying the whole application based on service provided, to do so would prevent the company from attracting the necessary capital funds with which to make the service modern, proper, and adequate, with resulting poorer service and more reason for complaint. Under the circumstances, it appears that the subscribers will ultimately be benefited more by improvements in service even though the cost is a somewhat higher rate in the interim. However, the rates prescribed herein will not produce the full amount of revenue which could be justified for excellent service, but represent an intermediate level between that and the present rates, and should make possible the provision of good service in the future."

The demand for prompt action in the regulatory process has further been met by granting temporary or emergency rate increases, conditioned that the rate be collected under bond. Experience has indicated that where a proper showing has been made this type of relief is available.

What I have said has been elementary and very general. It is apparent, however, that the demands upon you, and upon us, are not ordinary. They reflect the rapidity and abruptness with which changes are taking place in our economic and social life. By their very nature they require either a re-appraisal of old processes, a new approach, or both. Together, we can discharge our full obligation to the public we serve if we dedicate to the task the experience, the techniques and the abilities which we have.



Plant of the Walworth Manufacturing Company in Cambridgeport, Mass., 1876. The telegraph wire used by Professor Bell for his first reciprocal conversation ended in the building in the right-hand foreground, the other end being in the company's office in Kilby Street, Boston.

72 YEARS AGO THIS MONTH

The first two-way talk over an outdoor wire took place

"On October 9, 1876," reported Thomas A. Watson, "we were ready to take the baby outdoors for the first time." Bell had received permission to use a private wire between Boston and Cambridge. After clearing away some initial trouble, "came Bell's 'ahoy, ahoy!' I ahoyed back, and the first long distance telephone conversation took place."

Tests on longer lines soon followed. Improvements in instruments were constantly being made. And within but a few years, telephone exchanges had been set up in nearly every state. Telephone progress was off to a flying start. The telephone tradition of faithfulness and dependability, established then, has been maintained through all the succeeding years.

In Exide Batteries you will find the same dependability for which telephone service is famous throughout the world. For more than half a century, Exide Batteries have been proving themselves worthy of that trust.

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BATTERIES

1888 . . . Dependable Batteries for 60 Years . . . 1948

THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia 32 • *Exide Batteries of Canada, Limited, Toronto*

Clear the Way For Enterprise

(Continued from page 41)

(1) Every dollar of unnecessary government spending should be eliminated. By unnecessary, I mean every dollar of expense that cannot be justified in the test of urgent national need. The federal budget should provide a surplus for debt repayment.

(2) The tax structure should be revised to reduce the over-all tax burden and to increase the incentive to take business risks. This applies particularly to confiscatory taxes that dry up the sources of risk capital for new enterprises.

(3) Business-baiting and business-hampering laws should be revised and reviewed. This calls for study and recommendations from a non-political approach.

(4) Some of the powers over the public welfare concentrated in Washington should be returned to the states and to local communities. Community effort will play larger dividends in progress to the American people than impractical attempts at national planning. The United States is too large, too diverse, to fit into neat patterns drawn in Washington. National planning often defeats its own ends by killing enterprise, the main source of progress.

(5) Government should be staffed with officials who understand what makes enterprise function and who see the need for encouraging capital investment and new enterprise. Business-baiting in Washington belongs to the era of leftist infiltration into the seats of authority. Now the reds are on the way out and business-baiting should go with them. In this respect business men must take a more direct and active part in politics and government.

This, in brief, is the way to develop enterprise, to stimulate business initiative, to combat inflation, and to strengthen America and the west in the struggle for freedom.

The American economy is performing miracles of production. The war production job has been followed by the postwar job of replenishing supply lines . . . and providing for a rapidly increasing population with enough left over for the largest peacetime exports in our history.

Now supply has caught up with demand in many types of consumer goods. The sellers' markets are giving way to a period of plenty. The farmer has done a remarkable job of making enterprise synonymous with abundance.

Still the country and the world urgently needs production and more production. Many, many billions of dollars in capital investment will be required in the United States for the expansion and improvement of public utilities, roads, railways, oil and gas facilities, schools, commercial buildings, new manufacturing plants, hospitals, etc.

Add to these the large unfilled demands for housing, for automobiles, for household equipment of various kinds, for travel and recreation, and you have aggregate potential demand for goods and services that could keep employment and industrial activity at continued high levels.

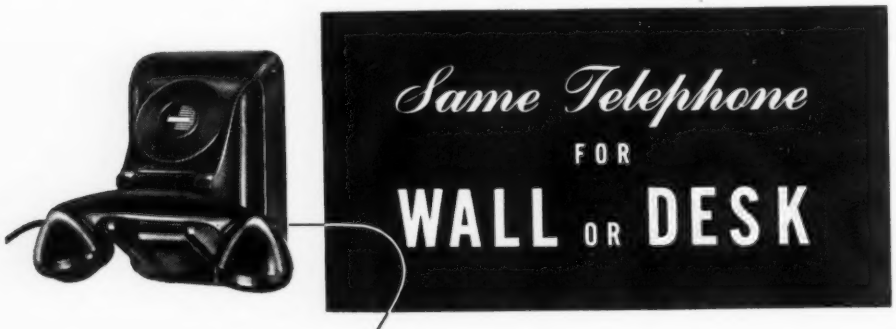
Still more, add to these the incalculable demands of national defense and European aid for the struggle against red fascism.

Here is work that challenges the capacity of American genius.

These are tasks we survey in an attitude of responsibility, devotion to duty and acceptance of destiny.

Above the clamor of campaign oratory and the alarms of diplomatic crises may be heard this command from the American people—clear the way for enterprise!

The times demand enterprise in every form and the cooperation of every seg-



LEICH'S NEW COMMON BATTERY HANDSET is the only telephone that can be used for either a wall or desk installation, with no changes —no additions—no extras to be bought. Its new simplified design, improved parts, make this a dependable, long lived, easy to maintain telephone. It has a new induction coil and condenser, with an improved capsule type transmitter and receiver which assure excellent transmission and reception. Feature for feature, you get more for your investment dollar with this Leich Wall-Desk Handset. Order one today, and see for yourself.

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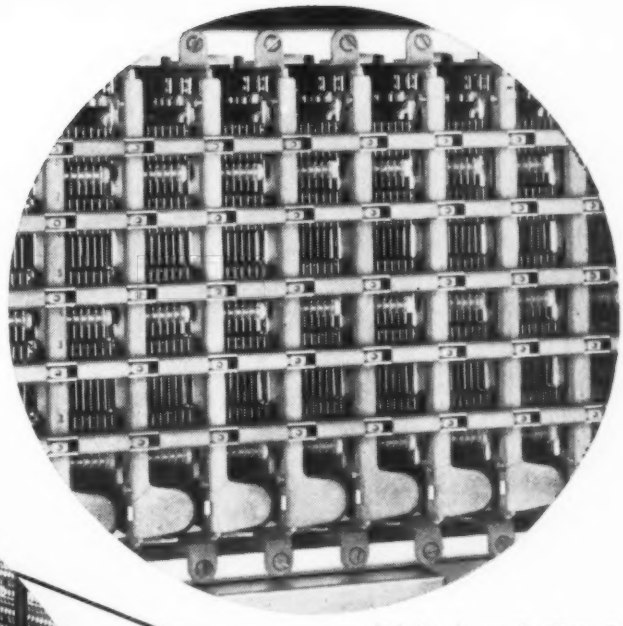
T W X



Switches in small offices do a distant operator's bidding.

IT TALKS WITH FINGERS

For those who want to talk, Bell Laboratories scientists developed the telephone. For those who prefer the typewritten message, they developed TWX – Teletypewriter Exchange Service.

Fingers on a keyboard send your message to be typed by one or scores of other teletypewriters selected at your request from the 21,000 instruments connected to the Bell System's nationwide TWX network.

As in telephone service, your TWX connection is set up through switching systems, manual or mechanical, as best may serve. And over long distances your message travels economically with many others on the same pair of wires. All these technics are products of Bell Telephone Laboratories research in the telephone art.

TWX is today a vital link in the nation's chain of communication. And year by year it benefits from the steady growth of the telephone system which carries it.

BELL TELEPHONE LABORATORIES

EXPLORING AND INVENTING, DEVISING AND PERFECTING FOR CONTINUED IMPROVEMENTS AND ECONOMIES IN TELEPHONE SERVICE.

ment of the nation to develop enterprise.

Clear the way and let the creative genius of America express itself fully on the farm and in the factory. Release the unexcelled energies of the American people. Work for the unity of America. Then this stronghold of freedom will be impregnable.

Mobile Telephone Service

(Continued from page 43)

pendent telephone companies? The feeling generally is, and I think properly so, that television network links should be furnished by telephone companies just as they now furnish radio program broadcasting links. Further, it appears reasonable that the ownership of television links should follow the general pattern of toll line and exchange loop ownership—as is followed with respect to radio program facilities. This would assume, therefore, proportionate ownership if two or more companies owned the toll lines fixing the television network route.

The interests of telephone companies in television may develop in another way. A case in point would be, for example, where an event to be televised originates within a serving company's area, either to be placed on a network or to be telecast locally. The problem would be to provide a suitable "local loop," so to speak. I understand that regular telephone cable pairs may be used if the distance is short, if the pair used is free of taps and if special equipment is provided. Such cable pairs are not too good, however, and to overcome their inadequacy one cable manufacturer has developed for television use a pair of conductors of special design, which is included in regular lead armored, paper insulated telephone cable. A cable with such a pair of conductors presumably would be placed only where it would serve an area from which television programs are expected to originate. Cables serving ball parks, football fields, boxing arenas, race tracks and so forth, might include the special conductor.

Another type of facility falling into the general category of local loops, which telephone companies may wish to provide in lieu of, or supplementary to, special cable pairs, is a low power, portable micro-wave link arrangement.

Entirely too little is known about this subject to permit discussing details or the merits of alternate arrangements. It cannot be seen today that television may affect the interests of a great number of Independent companies in the near future. That it will affect some, however, is quite certain. To illustrate this, at Aug. 1 of this year 12 television station applications and construction permits had been filed or issued to persons or companies in communities served by Independents. Other Independents may be affected by television stations located in nearby large communities operated by other companies.

To round out this picture, you may be interested to know that on the same date, Aug. 1 of this year, there were a total of 429 television stations in service and in process. Only 30 of these stations were on the air, 23 of which were operating under construction permits. With 429 stations on the air and in process, it is quite apparent that television is going to move along pretty fast in the near future.

My purpose in talking on this subject is to place before you the views of some industry leaders. It is that the provision of television link and "loop" facilities properly fall within the scope of telephone company operations.

Preventive Maintenance

(Continued from page 57)

pearance of the plant, but are a sure sign of cleanliness. Air filters installed correctly and maintained properly will prevent many failures due to dust.

In localities where high humidity conditions exist, textile insulated switchboard cables and equipment failures are not uncommon, especially in the smaller unattended central offices. *Fig. 10* shows the ventilating systems of an unattended dial equipment room designed to keep the relative moisture content in the air below the danger point, that is, not over 75 or 80 per cent.

Three ventilators down low on one side of the building admit air which leaves by way of the ventilators near the ceiling on the opposite side of the room, as shown by the cut away portion in *Fig. 10*. The rate of air flow may be accelerated by installing a fan at the outlet point. Such ventilators and fans may be operated manually or by dialing over regular trunk circuits from an attended office, keeping them closed during periods of high humidity and open during times when the humidity is relatively low. A simple inexpensive hygrometer will indicate when the relative humidity within a

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raytheon
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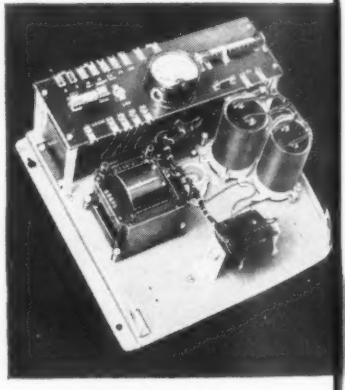

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WITH COVER REMOVED

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and efficient way to supply steady DC p
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With no moving parts, the Raytheon
filter requires neither adjustment nor
tenance. It will outlast many sets of batt
release wires carrying charging current
central office to subscribers' PBX boar
revenue producing service, and min
power cost because of high efficiency i
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Dry disc rectifying units and other co
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telephone power problems. Just plug
close the door—and forget it!

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hold that line . . . *with* chance *steel expanding anchors!*

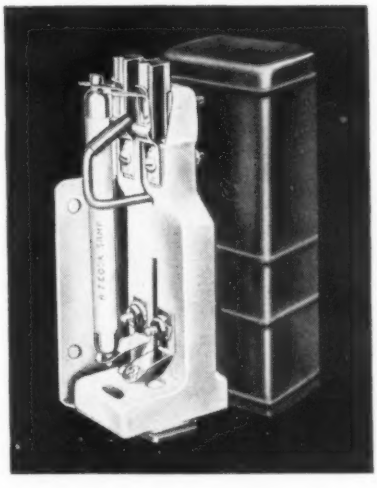
The Chance unbreakable Steel Expanding Anchor has a larger percent of its total area in solid earth than any other expanding anchor. Before you specify new anchors, check these outstanding Chance features:

- Rigid construction of tough, heavy-ribbed steel eliminates possibility of breakage.
- Blades rigidly fastened to expanding arms and grooved to conform to ridges in housing and base plate for accurate expansion.
- Expansion in opposite directions, assuring equal distribution of pull and eliminating side twisting.
- Drop forged steel driving head.
- Patented destructible nut retainer aids installation by preventing anchor from riding up rod. Rods can be salvaged or driven down if anchor is abandoned.
- Easy installation in any position, at any angle.
- Lifetime endurance with maximum strength for top economy.

cook type 0 *sub-station protector*

This single circuit protector, equipped with fuses and lightning arresters, is unexcelled for either indoor or outdoor use. Special Cook-engineered features include:

1. Heavy white glazed porcelain designed to prevent surface leakage between current-carrying parts.
2. Tru-Gap high-potential dischargers that will not ground the line.
3. Phosphor bronze fuse and arrester springs, zinc hood, Everdur studs and washers. Hood is grounded when in place.
4. Choice of types and lengths of Cook Telephone Fuses.



its Protection is more than skin deep— it's copperweld!

Copperweld wire does not depend for protection upon a thin deposit that temporarily coats the steel core, but upon a thick covering of copper, the molecules of which are permanently welded to those of the alloy steel by the exclusive Copperweld molten-welding process.

In addition to life-long protection against corrosion, Copperweld Telephone Line Wire gives you excellent voice transmission plus high strength for long span construction and the ruggedness to withstand winds, ice and falling trees.

Yes—the protection afforded by Copperweld is "more than skin deep"—it really lasts! So, wherever you need the conductivity and rust-resistance of copper with the rugged strength of steel, play safe—install Copperweld.

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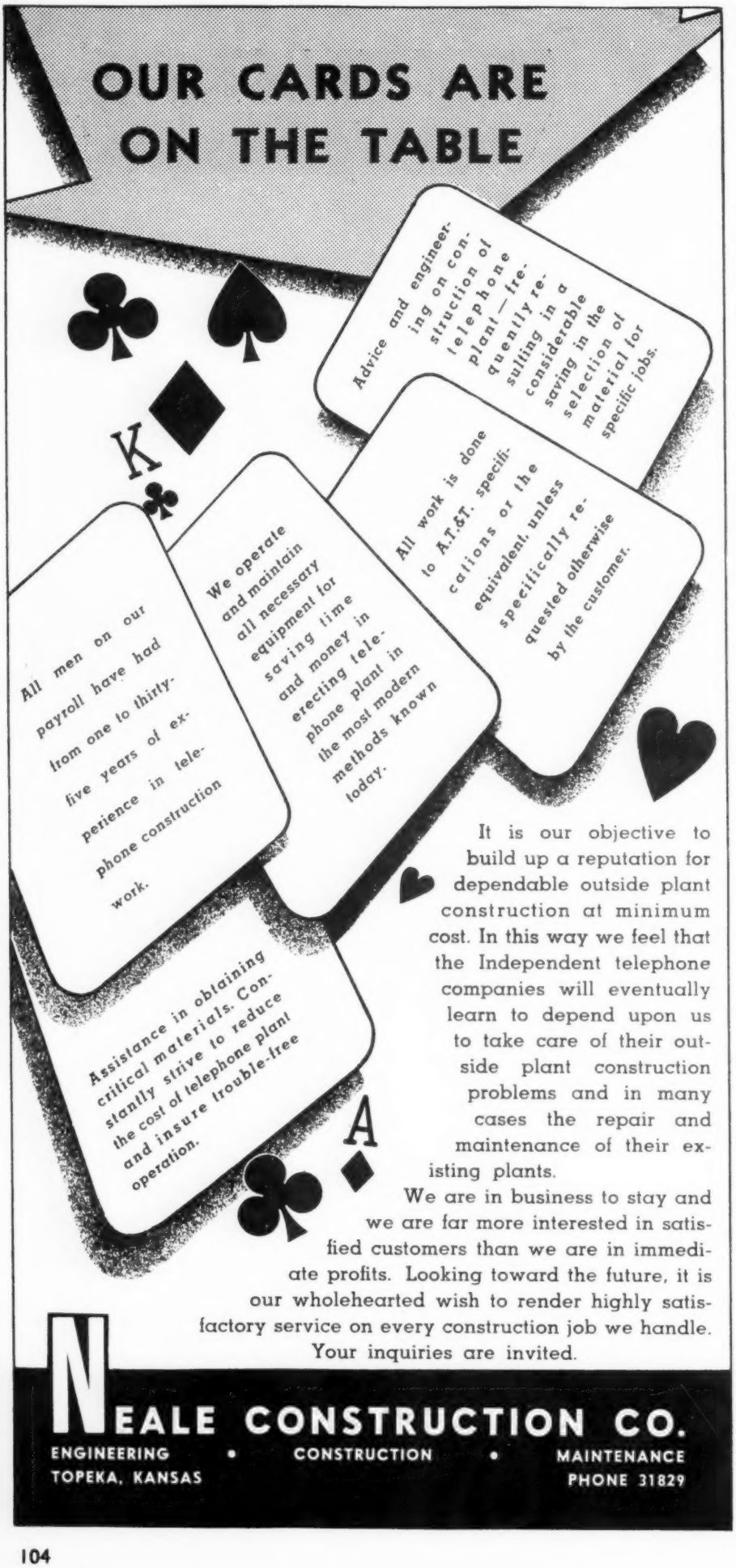
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We operate and maintain all necessary equipment for saving time and money in erecting telephone plant in the most modern methods known today.
All men on our payroll have had from one to thirty-five years of experience in telephone construction work.
Assistance in obtaining critical materials. Constantly strive to reduce the cost of telephone plant and insure trouble-free operation.
It is our objective to build up a reputation for dependable outside plant construction at minimum cost. In this way we feel that the Independent telephone companies will eventually learn to depend upon us to take care of their outside plant construction problems and in many cases the repair and maintenance of their existing plants.
We are in business to stay and we are far more interested in satisfied customers than we are in immediate profits. Looking toward the future, it is our wholehearted wish to render highly satisfactory service on every construction job we handle. Your inquiries are invited.
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room has reached the danger point and action must be taken to eliminate it.

The ideal set-up for any central office is complete air conditioning with dust filters, humidity and temperature controls. This arrangement would not only be ideal for the equipment but pleasant for the maintenance personnel as well. However, the cost is prohibitive for many small installations.

A complete, easy-to-analyze record should be kept of all plant failures. If this is done properly it will point directly to the spots where, when and how preventive measures should be taken.

Radio Telephony

(Continued from page 66)

present indications, will be provided by common carriers. In Independent areas, there will undoubtedly be a demand for intercity and local television pick-up facilities and Independents will want to provide this service. It is already indicated that wide band microwave links will probably be the best means of providing this service with assignments in the 4,000-megacycle and 7,000-megacycle regions, respectively.

A word at this time on the efficiency of radio as a medium of providing telephone service might be of interest, based on our experience. Generally speaking, radio-telephone operation on medium or high frequencies—that is, from 300 kilocycles to 30 megacycles by FCC classification—even under optimum conditions cannot be said to equal good wire service for situations where wire lines can be readily constructed and maintained and not subject to abnormal conditions. This is due, generally speaking, to the fact that radio frequencies in this region used for telephone communication purposes are subject to seasonal and other variations, including noise, both man-made and atmospheric, and various kinds of fading, some of which is selective with consequent distortion.

This is true even with constant improvements in technique that are taking place as, for example, single side band transmission. Where a wire line passes through difficult terrain, such as along rugged coastline, over mountains, through jungles or other natural barriers, we have found that wire line failures may more than offset radio shortcomings. Over large bodies of water and for mobile service, radio, of course, has a clear field. As we move into the higher "line of sight"

radio frequencies, the picture changes somewhat and there is every indication from both the standpoint of utility and efficiency that radio-telephone operation at line of sight frequencies eventually will equal or surpass current wire operation for many applications to be found in the Independent field.

This statement, of course, presupposes that channels will be assigned to the telephone industry when required and that suitable, reasonably priced radio equipment will also be available. Unfortunately, in the ultra and super high frequency regions where channel assignments are more likely to be plentiful, equipment costs will probably be the highest for a time at least, but there is every indication that the economic aspects will compare favorably with physical plant.

I would like to make a few comments on urban and highway mobile service currently rendered by Bell and Independents alike. Independents, including our own group, are somewhat slow in pushing this new service and rightly so due to the fact that an all-out effort is required to catch up with current telephone demands, taxing both available cash and personnel. Furthermore, economic considerations from the standpoint of the Independent based on the indicated investment and uncertain return on this investment will be found unfavorable except in a few cases where the mobile radio service demand is great.

There is the further complication that current mobile equipment is of a "stop-gap" variety that leaves much to be desired and undoubtedly improved equipment and technique will result from current operations that will better fit the requirements of operating telephone companies. Unfortunately, the mobile radio-telephone situation, for the present at least as far as Independents are concerned, is not compatible with common carrier petitions for increased channel assignments, although there is little doubt in my mind as to the ultimate need for additional assignments if our own group experience is borne out.

There is just one suggestion I have in this connection that may merit some consideration and protect the future to some extent. Instead of waiting for the day that an elaborate expensive system will prove in with some hope of at least breaking even from the standpoint of investment return, every Independent operator with three or even less vehicles operated by the plant for maintenance, installation or construction work, or other department usage for that matter, should apply for an experimental license, contemplating initial experimental operation

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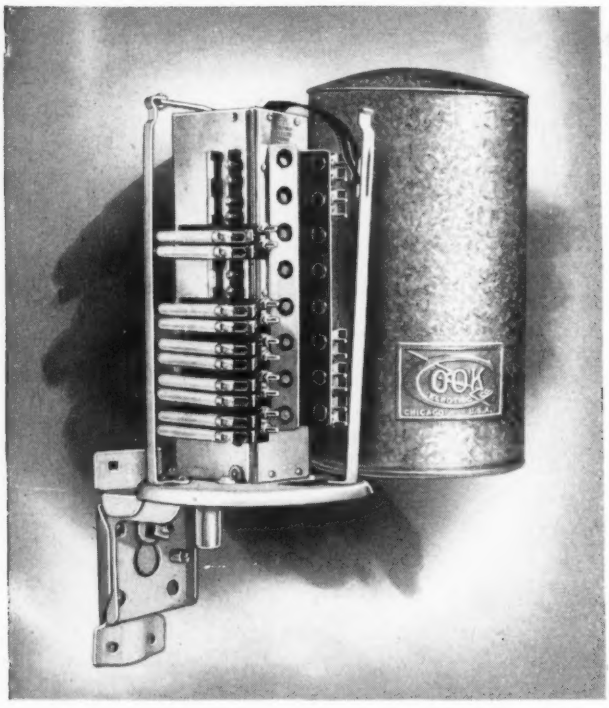
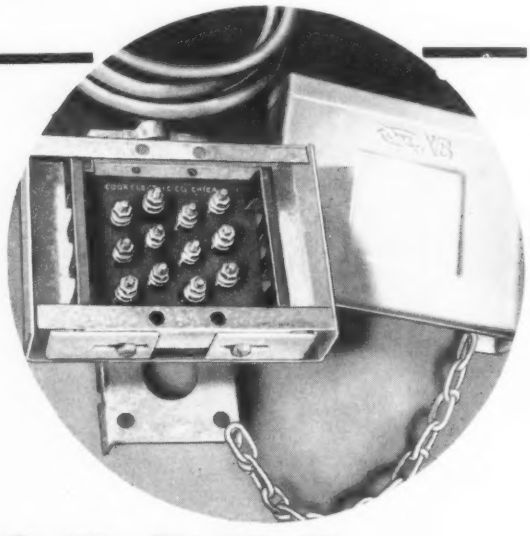


COOK S-20 Protected Cable Terminal is designed to take individual unit protector mounts. These mounts may be added as additional subscriber drops are required. Protectors contain primary and secondary arresters which provide lightning arrester protection after the fuse has blown . . . an exclusive feature. All drops are located in front . . . easily accessible.

COOK S-20 is a combined protected and unprotected all-steel cable terminal that is the recognized leader of the industry.



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with your own vehicles and, consequently, not on a toll or hire basis.

As an alternative, it might even be desirable for the USITA to make the necessary representation to the FCC for Independents to be included in the industrial band of frequencies, along with electric, gas, water and steam public utilities now included in this band. There are a number of apparent advantages to this initial procedure over delaying or doing nothing at all.

First, the experimental system as outlined can be abbreviated from an equipment standpoint and all non-essentials dispensed with. In this category would be such items as selective signalling, control terminals and many more items that contribute to the high cost of current mobile radio-telephone systems contemplating immediate commercial service. It is conceivable that a serviceable installation consisting of an approved fixed transmitter and receiver and one mobile unit capable of experimental service could be placed in service with an actual cash outlay of less than $1,000 if available labor was used and materials such as poles normally found in telephone company supplies were not included. It would be found, I am sure, that such an installation would be a natural and more than carry itself if due credit were given to all factors involved in controlling or contacting employes using company vehicles in their day by day operations. In addition, the experience of all concerned in the operation and maintenance of radio-telephone equipment would be valuable in evaluating the possibilities of commercial service as the next step in the particular area.

In the highway and urban mobile radio-telephone operations of the Home Telephone & Telegraph Co., of Fort Wayne, Ind., we have found definite operating advantages in everyday operations where company-owned vehicles are equipped with mobile radio.

I want to mention one more phase of radio that may be of current interest. As you know, radio in motor land vehicles has been pioneered to some extent by police and fire entities throughout the country and I was surprised to note at a radio meeting that I attended on behalf of the USITA that radio users not classed as common carriers appeared to resent the intrusion of common carriers in the radio field and were fearful, so it seemed, that their particular sphere of operations might be absorbed by radio operations of common carriers. As far as the Independent field is concerned, I see little chance of this happening, but I do visualize situations where joint operation might be worked out to mutual

advantage with the consequent conservation of frequency assignments.

In attempting to cover the broad subject of radio-telephony I may have indicated conclusions that are not in accordance with popular concepts of radio as applied to telephone operations. To this I can only say that my observations are based on actual operating experience of an organization since 1929.

Change in Sales

(Continued from page 69)

While these contacts are essentially a part of the service, the manner in which these contacts are handled reflect the employe attitude and have a direct bearing on customer relations. Our installers and repairmen, the people who go directly into the homes and offices of our customers, can do a world of good by performing their work expertly, cleaning up any debris after completion, being careful of the customer's property and being courteous in manner.

All these and hundreds of other activities properly performed result in good public relations, the absence of which means increased operating difficulties. The cultivation of good public relations is a job which must be done by everyone from the president of the company on down. It is selling an important phase of our business by proper leadership and example, supported by evidence that management is doing all it can to provide the plant necessary for expansion and relief of overloads.

The increased usage of long distance

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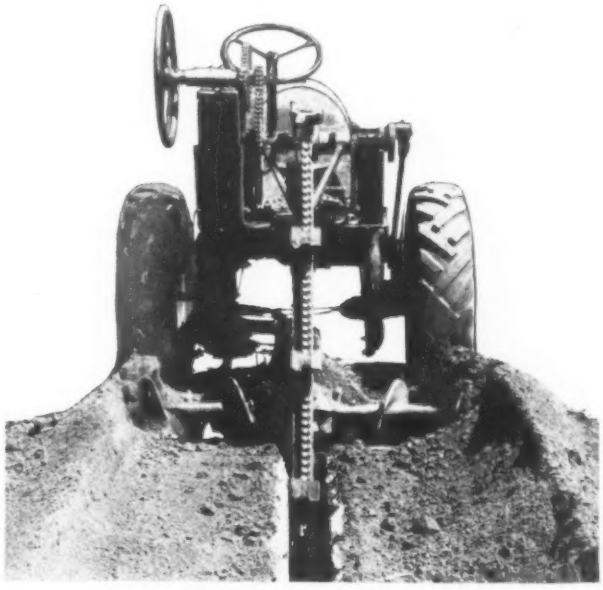
Jaques 'Model 10' trenches at truly *great* economy . . . not just your operational costs (your gas and oil consumption) but your *repair* and *upkeep* costs as well, are lower, providing greater economy *each minute* you operate! Make arrangements for a demonstration now. Seeing is believing! ! !



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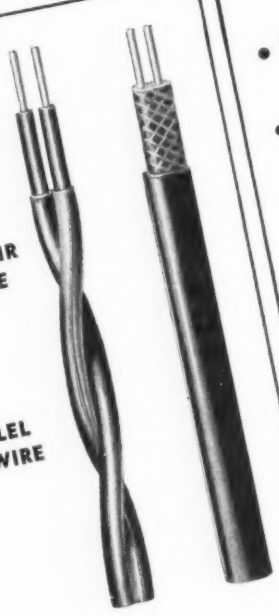

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Telephone—Hopkins 2100

ervice has been no less remarkable than the growth of exchange service. Since the war, all companies have been hard pressed to provide the facilities necessary to keep pace with the offered calls. All manner of short cuts have been adopted in operating practice. Our engineers and plant people have used their ingenuity to the utmost in providing more circuits and equipment. With much difficulty, the toll plant has been expanded and we are now approaching the point of handling all offered calls with little or no delay. Speed of completion continues to improve as more facilities become available. It is not too early for us to plan a toll sales program, which can be designed so it can be placed into effect, as circumstances warrant.

The advertising program now in use by many companies, suggesting placing certain types of calls during off peak periods is very helpful. Personnel trained in making toll analysis for customers should be available. A great many people are not aware of the toll credit card plan and its use can be greatly expanded by proper contact and publicity. Toll terminals to large users should be provided as facilities permit. Additional circuits will enable us to offer more private line services for talking, teletype, program and picture transmission. Just around the corner is nation-wide toll dialing, which will provide improved quality and speed of service. A vast amount of additional toll revenue can be secured, when ample facilities become available, through the use of proper promotional methods.

An outstanding example of successful selling in our business during recent years is classified directory advertising. Directories must be issued periodically and are essential to proper operation. In the past, many directories have been published at a loss; perhaps some still are. By the application of scientific sales methods, almost any directory can be converted from a losing proposition to a profitable one. By employing modern methods, directories have become a major source of revenue, in the face of scarcity of paper and greatly increased cost of production. In response to intelligent advertising by Bell and Independent companies, the public has recognized the reference value of the classified directory. Its development has provided an excellent advertising medium which is appreciated by advertiser and buyer alike.

We must keep ourselves informed of new industrial and business developments in our communities and supply new classified headings as may be appropriate. By intelligent arrangement of listing and advertising matter, the usefulness and appearance of our di-

rectories can be enhanced, thereby making them more desirable as a medium of advertising. The revenue possibilities from directory advertising are limited only by the selling procedure used and by the ingenuity of the people engaged in the work. In these days of high operating costs, the revenue that can be derived from the sale of directory advertising should be welcomed.

Many existing business organizations are expanding and, invariably with such expansion, additional telephone facilities and equipment are needed. Where one or two individual lines with a few extensions were previously adequate, a wiring plan or switchboard may now be required. Whatever the circumstances may be, trained personnel should be available to make surveys of customers' requirements and make such arrangements as may be possible to provide adequate service.

We should be constantly alert to good locations for public pay stations. Public telephones, greatly appreciated by the public, are an essential part of our service, and an excellent source of revenue. In this respect, vending machine operators follow good reasoning. Put them where the people are and they will be used. So it is with pay stations, put them where the people are and the revenue will follow, in addition to providing a public service.

Mobile radio is a relatively new development in telephony. With the millions of passenger cars, busses and trucks on the road the possibility is tremendous. Not so many years ago very few cars were equipped with a radio. Now automobile radios are almost as common as spare tires. Installation of a telephone in his car has captured the imagination of many a man and when the service is available, he will not be difficult to sell. With increased usage, rates will doubtless be lowered bringing the service within the price range of more people. Mobile radio has a bright future and intelligent sales effort can enlarge its popularity.

Yes, we are engaged in a wonderful industry and one that has gone far in a relatively short time. Its history is one of remarkable achievement and great scientific development. And unquestionably there will be further marvelous development and application of the art in the future. We should all be proud to have a part in it, but we must always be mindful of our responsibilities to the public, by providing the best service possible, at rates that are fair to the user and that will enable the industry to pay good wages to the employe and a reasonable return to the investor. In order to achieve

GraybaR
TELEPHONE SUPPLIES
BULLETIN

POLES AND CROSSARMS

You're sure of early delivery if you order poles and crossarms from Graybar Electric Company.

We supply full-length, pressure-treated poles and Douglas fir crossarms. The high, rigid standards these materials have to meet are your assurance of outstanding strength, endurance, and uniformity — adding up to *long service.*

...AND POLE-LINE SUPPLIES

Insulators, wire, strand, hardware, and tools — all made by leading manufacturers — are distributed by Graybar, the single, convenient source of *everything* for pole-line construction and maintenance. Your local Graybar Representative is anxious to show how our service can simplify your pole-line work. Why not call him today? *Graybar Electric Company. Executive offices: Graybar Building, New York 17, N. Y.* 4848

EVERYTHING IN TELEPHONE SUPPLIES via GraybaR

IN OVER 100 PRINCIPAL CITIES

SPECIALIZED HELP — YOURS FOR THE ASKING!

At each of our 18 key houses, there are Graybar Specialists in communication, inside electrical construction, outside construction, lighting, power apparatus, and other electrical lines. These men have intensive experience in their respective fields and are competent to assist you on technical problems. The services of both your local Graybar Representative and near-by Graybar Specialists are always available to you.

and maintain this happy situation, we must continue to sell service for the revenue to be derived and goodwill for the public relations to be enjoyed.

V V

N. C. Company Incorporated

Thermal Belt Telephone Co., Tryon, N. C., has obtained a certificate of incorporation from the North Carolina secretary of state to maintain a telephone system with authorized capital stock of $200,000, of which $8,500 has been subscribed by the incorporators, Marion Palmer, Fred Buchda and Ryan McCown, all of Tryon.

Employer-Employe

(Continued from page 72)

it down on the counter and, perversely, the coin rolled off and down the aisle toward the clerk's chair. The customer thought, "Doggone it, I have gone this far, I am going to see this thing through. I am going to find out what that boy is reading."

He walked back the length of the store, picked up the coin and looked over the clerk's shoulder to see what this deeply engrossing book was. He was amazed to find that the title of the book was, "The Applied Science of Salesmanship."

Perhaps there is something funny in this incident but there is also something tragic in it. It is funny, because, of course, it is fictional, and it is tragic because it is factual in too many of our companies today.

Obviously, the needs of our companies vary greatly but most certainly all of us need to promote employe education. I mean education from the bottom to the top. The main thing is to realize and take action upon the cold, unpleasant fact that for some years we in the Independent field have done little or nothing to educate our workers. During the war, and subsequently, we have added innumerable employes to keep pace with the abnormal rising trend of business. We could use more. Today we deal chiefly with newcomers who have never been asked to demonstrate their ability to do a job before it is assigned to them. It is true that we have application forms. We ask a lot of silly questions, require references and past experience. But do we find out if the particular applicant is qualified to hold the job for which hired or if he has the ambition to study and learn so that he may qualify? Do we ascertain if the applicant will fit into our organization and will work cooperatively and helpfully with his fellow workers? I think not.

If a girl applied for the position of an operator tomorrow, looked healthy and reasonably intelligent, we would hire her. By we, I mean you and me. During the war years, we employed many people whom we knew would be mediocre but we badly needed additional personnel to handle the increased traffic load and to keep pace with the increasing demand for telephone service. Most of these people are still with us although they should have been weeded out long ago. I once asked the personnel manager of one of our large industrial plants in Everett, Wash., during the war years what were the prerequisites for employment in his plant. His answer was that all you needed were two arms, two legs and eyesight. If you couldn't stand up all day, they would prop you up.

The following story, I believe, is indicative of our hiring procedure.

An executive in an industrial plant was faced with the job of hiring an assistant. He went to the book store and bought all of the books he could find on the subject of hiring personnel.

How Edison's Electronic Voicewriter has improved recording of telephone conversations

Because the telephone performs a vital function in American business, accurate and permanent recording of important telephone conversations is becoming more and more essential.

Thomas A. Edison, Incorporated introduced its first commercial telephone recorder—The Telescribe—back in 1915. But that was only the beginning. Today, the Electronic Voicewriter with its exclusive Automatic Volume Control can record near or far voices uniformly whether the volume of the voice "picked up" is weak or strong. It adjusts electronically all incoming tones and thus compensates for either inadequate or excessive volume.

To give added clarity, Edison developed Ear-Tuned Jewel-Action. Telephone company engineers appreciate how the greater frequency capacity of Ear-Tuned Jewel-Action clearly records the difficult fricative consonants z, th, f and s . . . an important factor when recording transatlantic or foreign language conversations.

The commanding position which the Edison Electronic Voicewriter holds today in the business world is the direct result of constant Edison research for better service through better sound recording.

Thomas A Edison
Edison
Electronic
Voicewriter
Is a product of Ediphone Division, Thomas A Edison, Incorporated, West Orange, N. J.

He studied them religiously. He wanted to do the job exactly right. After he had mastered all of these books, he ran an ad in the paper for an assistant.

It was a big job. There were hundreds of applicants, so a committee was formed to sift them down to the three most likely candidates. Then the executive took over at that point.

He called the first boy in, and with his textbook spread out in front of him, he went through the long string of questions the book suggested. As stated above, you know the usual silly questions that are included in an application for employment.

He went down the line, and asked, "How old are you?" "Where were you born?" "To what church do you go?" etc., etc. Then at the end of the book, it said to ask a trick question. The executive then asked, "Quick now, young man, how much is two plus two?"

The boy looked a bit puzzled and said, "Four."

The executive refererd to the textbook and replied, "You have a sense of accuracy that is very interesting. We need men of accuracy in our company. Come back and see me Tuesday."

He called in the next boy, and from another textbook he went through another long series of questions. Then at the end, again he asked, "Quick now, how much is two plus two?"

And the poor kid, in confusion, said, "Six."

Well, the executive referred to the textbook, but it made no provision for such an answer as that. He scratched his head for a minute and then said, "Anyhow, young fellow, you have a sense of vision that is interesting. In our business we need men of vision. Come back and see me Tuesday."

Then the last boy was called in. He was interrogated on another set of questions in another book and was asked, "How much is two plus two?"

The poor kid, in utter confusion, said, "Eight."

Well obviously the book didn't anticipate that startling answer, and the executive said, "Well, anyhow, young fellow, you have a sense of imagination that beats anything I ever saw in our business. We need men of imagination. Come back and see me Tuesday."

The next day he was recounting his experience to a friend of his, and he asked, "Bill, which one of those three boys do you think I hired?"

Bill thought very seriously for a moment and replied, "Well, it was either No. 1 or No. 3."

"No, no. It was No. 2."

"Why did you hire No. 2?"

"Because, he is my wife's nephew."

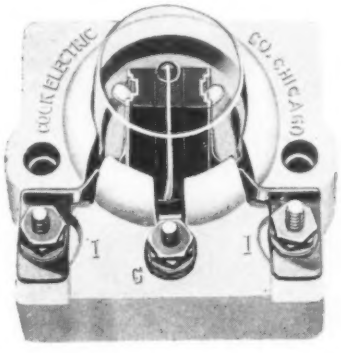
Seeking Service? . . . Satisfaction?

THEN SETTLE ON SUTTLE AND GET THE BEST!

SUTTLE Stocks COOK Arresters for Immediate Shipment

Cook No. 1

Lightning Arrester
for outdoor use

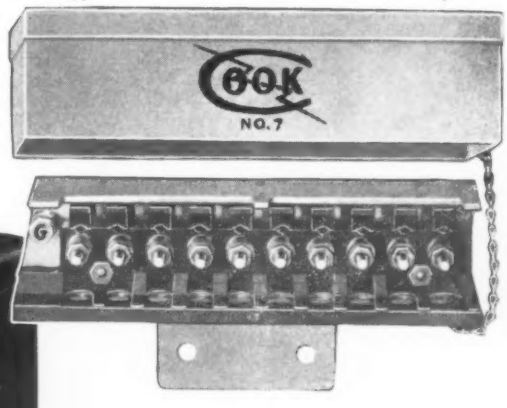


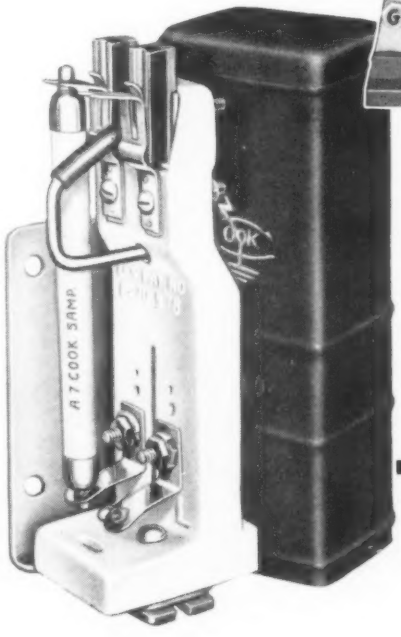
Cook No. 2

Lightning Arrester
for indoor use

Cook No. 7

Aerial Wire Arrester
for pole line





Cook Type-0

Sub-Station Protector
It contains arresters and fuses for protection against lightning and power crosses.

SUTTLE

EQUIPMENT COMPANY

Supplies and Equipment for Independent Telephone Companies

LAWRENCEVILLE, ILLINOIS

Now, this story may be far-fetched, but it does illustrate the loose manner of hiring employes which in my opinion, does exist.

Of necessity, we have tossed half-fledged beginners into work about which they knew little or nothing and have left them to work things out for themselves. We must offer to every man and woman in our service the opportunity to acquire a thorough knowledge of the work he is doing and of the work he may be called upon to do in the line of promotion. Further, we should make his retention of his present position and his future promotion contingent upon his adequate assimilation of the education we offer him.

Company training courses, on-the-job training programs, apprenticeship training programs, night schools, correspondence courses, etc., are indicated. These programs will cost us money but the training must be done. In any event, it will be an outlay that will return to us increased employe efficiency and consequent lower operating costs. There is no economy in doing work badly with poorly trained men and that is just what too many of us are doing today.

Our company has held a series of conferences with plant, traffic and commercial department employes in Everett for the purpose of acquainting all of our employes with our plans, our problems, the meaning and purposes of our various instructions, as well as to elicit their ideas and to afford an opportunity for frank discussion. These conferences, which will be continued, have been very well received by our employes. They have resulted in a much better understanding between employes and management.

It probably will require the assistance and cooperation of your union to put an educational program into effect. Approximately one year ago we started an apprenticeship training program in the plant department of our company. It required a certain number of hours of night classes in an accredited school and all apprentices were required to participate. The newcomers practically voted the plan down, and, if it had not been for the union representatives, they would have rejected it. In other words, the majority of the new employes wanted to ride along on the wage progression schedules, doing just enough to remain on the payroll. I am sure that our situation and problem in this regard is not any different from yours. It is a pleasure to report, however, that our performance has improved and is continuing to improve. It is also significant to note that the employe's interest in his work and in the company is becoming much more apparent.

I feel that this association should lead the way and assist our member companies in this vital matter of employe education. I urge the formation of a strong United States Independent Telephone Association committee charged with the task first, to study and then to promote, programs of employe education for our Independent companies large and small. Some time ago, our industry needed organized and effective advertising. Through the medium of the *Telephone Advertising Institute*, this association has been instrumental in persuading many of our companies to advertise intelligently and consistently for the first time in their existence. Every company in the industry has gained by that effort.

Similarly, we need employe education. We need it as an industry and as individual companies in that industry, far worse than we needed advertising. The Independent industry as a whole would benefit greatly from the formation of some group, perhaps similar in operation to the *Telephone Advertising Institute*, that will work to improve the technical education and ability of Independent telephone men

IT'S NOT A ONE PURPOSE TOOL!

It drills small holes or large holes.
It drills vertical holes, horizontal holes or holes at any angle.

KA-MO Earth Drill
The Many-Purpose Tool

It drills pole holes—it drills post holes—it drills anchor holes—it drills temporary or permanent wells. It drills pipeline or conduit holes through caissons, under roads, streets or embankments.

KA-MO Drills can be mounted on any standard truck or supported by a light tripod. They work in close quarters or out-of-the-way places as far as 200 ft. away from the truck or generator.

When boring holes for poles, posts, temporary or permanent wells, the earth is removed with drill, leaving a CLEAN hole for pipe or caisson.

KA-MO Drills are available in sizes from 4″ to 24″ in dia. for horizontal holes, and 3″ to 18″ in dia. for vertical holes, in single lengths or in sections which can be built up on the job.

The same motor you use for pole line work can be used to drill holes 3″ to 16″ in dia. Holes larger than 16″ require larger size motors.

Get the facts on this extremely economical method of speeding up pole-line, conduit and pipeline installations.

Drilling 24″ dia. hole through 30″ caisson, under railroad. This method also used under Streets, Highways and Embankments.

3086

KA-MO TOOLS, INC.
2121 S. Troy Street • Chicago 23, Illinois

and women. I sincerely hope that this will be done.

At this particular point I want to pay special tribute to the older employes in all departments—those who have been with us for a number of years. They are the ones who understand the aims, objectives, policies and problems of our companies. They desire security and know that they will get it in our employ. They are interested in their work and have achieved craftsmanship. Without them, I feel certain that chaos would reign in the communications industry.

Which road are we going to take? Shall we continue as we are or are we going to provide employe incentive and opportunity? Are we going to provide employe education so that our personnel will be better equipped to do their present work and to advance as opportunities arise? A man had made a motor trip to a certain state. He had gone clear off the roads, where there was a white place on the map, and no lines to show where to go. It was late Sunday afternoon. He wanted to start back home. He came upon a little stream bed which was the only road. There he overtook a gentleman with an ordinary old-fashioned cart, a donkey and some milk cans. He said, "Neighbor, what is the best way to go to Cincinnati?"

The man replied, "You go right on up the road here till you come to the fork of the road. It don't make much difference which branch of the fork you take. You know, to tell you the truth, if I were going to Cincinnati, I wouldn't start from here."

We must start from here and right now. Delay can be disastrous.

If I worked for you for eight hours a day and five days a week, here is a list of things I would want. Now, of course, my wants will increase the longer I work for you. The day I apply at your personnel office, I only have one, "Give me a job." I am only going to list simple, human wants.

First, I would like to have a job that you make me feel is important to you, so that if I perform it well, I will have achievement from it.

Second, I would like to have you praise my work not me, if it is satisfactory, and criticize it if it isn't satisfactory, not by bossing or dictation, just an educational talk.

I expect to improve myself as time goes on. Have you educational classes? Have you foremen and supervisors who can help me? Please help me adjust myself to my job.

I expect to work under good working conditions. I do not intend to be unreasonable in this respect but I do expect good and adequate standards.

New CHANCE 8-way Expanding Anchor

Another contribution to better anchoring

CLOSED POSITION

EXPANDED POSITION

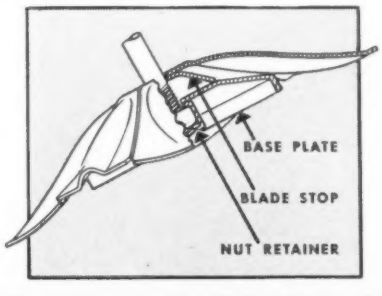
Here is another answer to the problem of rapidly rising line construction costs! The new Chance 8-way Expanding Anchor gives you more holding power for less money.

Better load distribution makes this new Chance Anchor stronger than other expanding anchors—and the absolute simplicity of its construction makes it the most smoothly operating expanding anchor on the market.

GREATER HOLDING AREA. Eight blades expand to form a square, with equalized load distribution all around the anchor. Each blade carries approximately one eighth of the load. There are no open areas between blades.

GREATER HOLDING POWER. The 8-way Anchor expands in the shape of a cone and holds like a wedge against undisturbed earth on all sides.

SIMPLE CONSTRUCTION. No moving parts, arms, or mechanical devices hinder the smooth operation of the 8-way anchor.



STURDILY BUILT. Each blade is formed with a reinforcing rib that prevents buckling. Hinges will not collapse under strain.

RETAINS SHAPE UNDER HEAVY LOAD. Repeated pull out tests show that the new 8-way Anchor develops more holding power under the same conditions than other expanding anchors of comparable size.

EASY, SURE EXPANSION. The pre-formed blades cut into solid earth with little disturbance and the pointed corner blades make starting easy. Linemen can tell when the anchor is fully expanded by the sound of the top plate hitting the bell-shaped blade stop.

BLADES ARE SUPPORTED BY BASE PLATE. They will not buckle down in the middle. The diagram, showing expanded position, illustrates how base plate supports blades.

NUT RETAINER, shown in diagram, makes it easy to push anchor to bottom of hole. The anchor rod and nut cannot be pulled through the base plate.

C4818

A·B·CHANCE CO. asc INDUSTRIES

CENTRALIA, MISSOURI • SAN FRANCISCO, CALIFORNIA

I expect to receive fair, honest and competitive wages, competitive not only in the community but also competitive with other wages in your company.

Please do not have a lot of unnecessary rules—rules that I do not understand—rules that do not decrease cost or provide for greater efficiency. I, as an individual, don't want to be in a straightjacket.

The older I grow, the more I am going to believe in security, not necessarily job security, but insurance, medical assistance, hospitalization, old age pensions. You can do more for me at lower cost, in dealing with a group than I can as an individual, even though I pay for it, too.

From time to time I would like to have information about my company, its policies, its successes, its failures—all you can tell me—so you can make me believe I am an important cog in the wheel, and so that you will help me not to have misunderstandings, because misunderstandings cause 95 per cent of all of the troubles in the world.

Lastly, will you please think of me and my family in other than working hours. I am not a floater. I want to be a good citizen. I have come to work here hoping to grow up in the business. Taxes, schools, churches, recreation centers, electricity costs, water rates and rents all have a part in my family's happiness and have a part in my cost of living. I want you to remember that I want to be with you in those things which are important to us both.

In other words, to designate you as management, please treat me as an individual, with all of the simple dignity of a man. That is all I want.

The fourth quarter of the football game to which I referred previously has started. The score is still tied but we have the ball. Better understanding, cooperation and teamwork between employers and employes is our goal. Employes are looking to us as employers for leadership, guidance, strategy and the direction of plays. Let's not fumble the ball.

Business Office Records

(Continued from page 84)

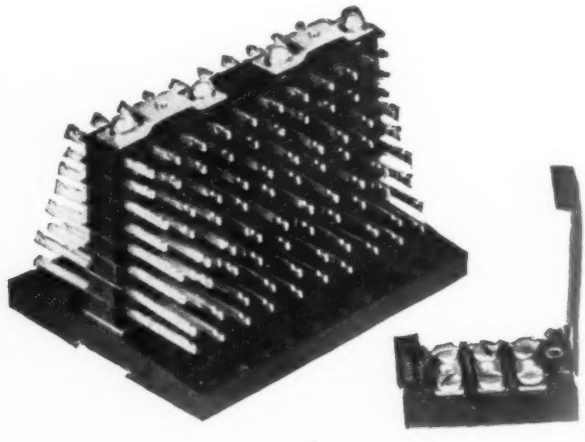
ploy a trouble ticket on which reported troubles are noted for further handling by the local maintenance men. In too many cases, however, the business office is never advised that the trouble is cleared so that the customer can be called to determine whether or not the trouble has been taken care of to his complete satisfaction. I think that a routine in every exchange ought to be established so that the business office follows up on every reported trouble. The business office should determine if the customer is completely satisfied with our efforts and, if not, report the customer's reason for dissatisfaction to the proper department for further handling.

Only recently we made a test to determine the value of such an approach with respect to customer reports of service difficulties, and I can report to you now that the results were very satisfactory and that there is nothing that contributes to complete customer satisfaction like plenty of personal attention. I heartily endorse the providing for a form whereby a record may be made in the business office of customers' service troubles so that four or five days after a trouble has been cleared a commercial representative calls the customer to determine if the customer is completely satisfied with his service.

I know that in most of our exchanges information first noted on the trouble ticket is transferred to a subscriber

FAHNESTOCK

Terminal and Connecting Blocks



BUCKEYE TELEPHONE & SUPPLY CO.

COLUMBUS 6, OHIO

AVAILABLE FOR QUICK DELIVERY

Fahnestock terminal and connecting blocks have been standard equipment on all telephone and telegraph lines of the railroads and telegraph companies in the United States and Canada for the past 20 years and meets all A.A.R. Communications Section requirements. The terminal block's base and fanning strips are made of molded bakelite, and this, together with its phenolic insulation strips, makes it far superior to the rubber or wooden types and can be had from 10 to 80 wire capacity.

The smaller 7-B connecting block hardly needs description, except that its cover is non-removable and the screws are peaned over to prevent them from dropping out.

Write for information today.

ticket is transferred to a subscriber station or line maintenance card so that a record is always available of all the trouble reports made by the customer showing the date on which the trouble was reported, how the trouble was cleared, and the time it was done. This provides us with a record of the number of times a customer has had trouble with his station or line and also furnishes us with a valuable record should the customer request information concerning his service interruptions. A record of this kind should be kept by all exchanges whether they be large or small.

In addition to the subscriber's application for service card and such records as you maintain, with respect to handling subscribers' complaints, and lists of monthly delinquent accounts, there is great need for the maintenance of accurate records relating to the billing of subscribers' monthly local service and toll charges. It is not my intention to discuss or to make any suggestions as to the method of billing, except to state that whatever type of billing is followed, whether you bill from a subscribers' ledger or under a plan of stub billing, an important factor that we should all keep in mind is that the bill, which is a record of the customer's account with us, be neatly and accurately prepared and printed so that when the customer receives his bill he has no doubt in his mind as to what the charges, as they appear on the bill, cover and as well as the period for which the charges are made.

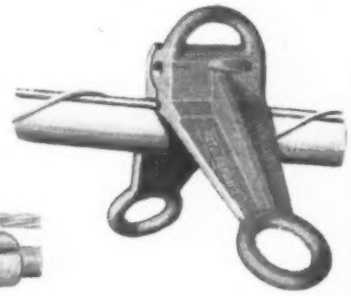
In connection with billing, records should be maintained in the business office of comments received with respect to charges made on the bill which might, because of any misunderstanding, later develop into a formal complaint. In connection with record keeping, as it relates to the customer's billing, I think that sometimes too little emphasis is placed upon the necessity of providing the customer, who has requested his service to be discontinued, with a final bill as soon as possible.

If we in the business office are watchful of the revenues of the company which we represent, we have an obligation to keep the amount of uncollectibles at the very minimum. One way to do this is to present the customer with his final bill within a few days after his telephone service has been discontinued. In the event the collection of a final account cannot be made, I would suggest that an uncollectible account jacket record be used so that the billing material, including all the information relating to previous efforts to collect the account, can be kept in

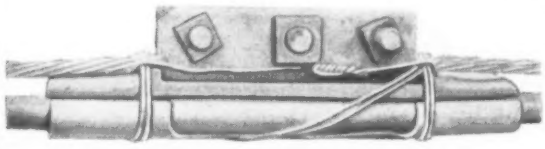
Maintenance Spinning PAYS 7 WAYS

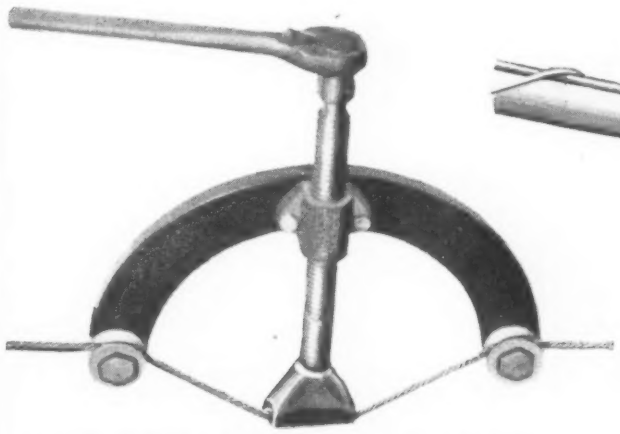
1. Cuts cable maintenance costs at least two-thirds!
2. Extends life of cable many years!
3. Saves expense of installing new cable!
4. Improves "subscribers service" because you have less cable trouble!
5. Cost of "maintenance spinning" is low!
6. Spun cable gives you a "good looking" plant!
7. Repairs on spun cable are made easy with the "Little Giant" Slack Puller and Accessory tools. Correctly designed maintenance tools do the job quickly and cheaply!

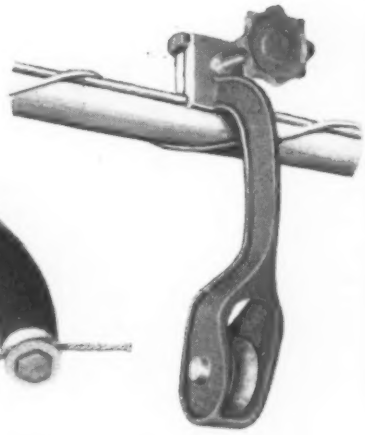
Platform Clamp (no wrenches needed)



Molded Lead Shield gives you more protection at pole.







Little Giant Slack Puller with new ratchet handle pulls slack quickly, makes repairs easy.

Hand-Line Block (no wrenches needed)

Your jobber will help you plan for maintenance spinning.

CABLE SPINNING EQUIPMENT COMPANY

TOPEKA, KANSAS

one file, always handy when needed for subsequent collection effort.

In some of our larger offices, additional business office forms are maintained for the purpose of keeping records with respect to more general matters. I have in mind, particularly, the maintenance of records relating to held orders—those applications which we are not able to promptly take care of because of lack of exchange facilities. The type of held order record varies, and should vary, between exchanges of different size. But in every case it is important that a record relating to the held orders be maintained and that the subscriber be kept informed, as you best see fit, of the progress you are making to take care of his service application.

Too many complaints come to our business offices which arise simply because the customer has not been kept informed, and you cannot keep a customer well informed if you lack the necessary records from which information is to be gained and passed along to the customer. If you maintain a held order list, and you should, this record should show in each case, the reason that the order is being held. This record can serve as a good guide of the type of advertising you should be doing to keep the customer acquainted with your problems and the progress you are making to solve them.

In addition to the records which I have already referred to, we should not overlook the need for proper record keeping covering cash collections made in our exchange offices or the need of written records relating to adjustments of customers' accounts. Record keeping in the commercial office also means letter writing, and care should be employed in writing our letters so that what we have to say is said in a friendly, courteous way with situations being clearly explained so that no misunderstandings may arise. Promises made in letters should be taken care of on schedule and, if for one reason or another, some delay is experienced, this should be brought to the customer's attention without fail.

Time does not permit a review, in detail, of all the lesser records which might be employed in our exchange business offices. As I have stated, the need for certain records may vary between exchanges because of size and operating practices employed. There are records, however, that no exchange, regardless of size, can afford to be without, and it is these records that I have outlined for your consideration. None of them are worth the paper they are written on if they are not constantly maintained, kept thoroughly accurate, and employed for the purpose for which they are designed.

Here is a letter received from a customer which is worth more than the cost of a year's supply of all the records used in any commercial business office:

"Dear Sirs:

"No, you don't have to handle this letter with asbestos gloves! I am writing to thank you for the kindness shown me in having a telephone installed in my office—at the desk. Your Mr.—— and Mr. ——effected the job perfectly.

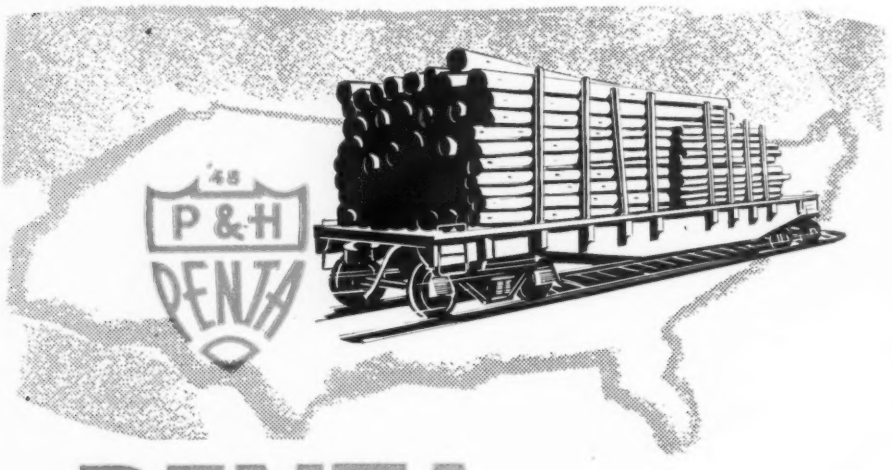
"I feel that it is no more than right that, after submitting a complaint, I likewise take time to express my gratitude."

This letter was not received without first doing a lot of work and doing it promptly. This customer is now a friend and speaks well of the telephone company which provides him with telephone service. We would do well to remember that one dissatisfied customer may instill doubt in the minds of many customers who are perfectly satisfied with their service.

It is the purpose of keeping records to eliminate any possibility of our overlooking any customer requests which come to our attention in the business office. In these days, faced as we are with rising costs and the need for exercising economies in order to protect the financial status of our companies, we in the business office can lend considerable help by eliminating costly errors which creep into our day by day business transactions if we will only provide our people the necessary forms on which to record information relating to the service matters which come to their attention.

There is nothing unusual or new concerning the "record keeping approach" to successful commercial business office operations. Those who employ sound judgment in the use of business office records will quite naturally develop and enjoy pleasant customer relations and will have more time to spend on worthwhile telephone service matters. Those who would choose to ignore the importance of such records should not complain of the time and money wasted in running down needless complaints.

We are aware of the tremendous job that still lies ahead in the telephone industry, and every exchange business office can contribute extensively to the successful completion of this task by keeping and using proper and effective business office records.



PENTA POLES

They are light in weight.

Easier to transport and set.

P&H

PAGE AND HILL CO.

MINNEAPOLIS, MINNESOTA · 50 CHURCH STREET, NEW YORK, N. Y.

"STILL IN THE LEAD"

Distributed by AUTOMATIC ELECTRIC SALES CORPORATION . . . . STROMBERG-CARLSON COMPANY

PEATROPHONE

"The Mechanical Secretary"

Made in two types—one complete with built-in telephone instrument; the other adapted to use existing telephones (illustrated below).

The only device that answers the telephone in the subscriber's absence and records any incoming message the calling party wishes to leave. Repeats all messages when the user returns to his instrument.

Records two-way conversation. Plays back recorded messages over the line and complies with all F.C.C. requirements.

PEATROPHONES require 110V. A.C. Consume less current than a radio set. Use records that cost one-quarter of a cent per message.

— *"Surely made a hit at the Convention"*

Telephone operating men from all parts of the country visited our exhibit and showed keen interest in Peatrophone,—as evidenced by the placing of more than 100 orders!

PEATROPHONES prevent "Don't Answer" calls. They are furnished only through telephone operating companies and are not for sale direct to the subscriber. They require no change whatever in existing equipment or operating procedure.

PEATROPHONES eliminate many uncompleted toll calls as the subscriber can leave a message on the PEATROPHONE so that when the toll operator calls she will know where to reach the subscriber.

PEATROPHONES mean increased revenue and better service, and your subscribers welcome PEATROPHONES as giving them 24-hour answering service as well as recording service at minimum expense.

Write us today and ask for information respecting our leasing plan.

TELEPHONE ANSWERING AND RECORDING CORPORATION
342 MADISON AVENUE **Telo: Murray Hill 2-5166** **NEW YORK 17, N. Y.**

ELIMINATE
REPLACEMENT COSTS
USE UNBREAKABLE INSULATORS

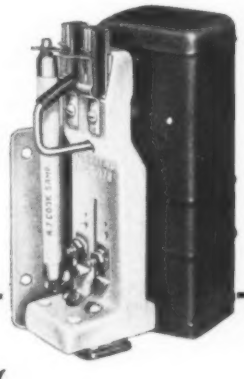
Purchase direct or through your jobber.

$11.25 PER HUNDRED
F.O.B. CHICAGO

COMMUNICATION EQUIPMENT & ENGINEERING CO.
5646 Race Avenue • Chicago 44, Illinois
Telephone ESstebrook 8-3110

COOK Type O
SUB-STATION PROTECTOR

This single circuit protector, equipped with fuses and lightning arresters, is unexcelled for either indoor or outdoor use.



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FIRST with QUALITY!
FIRST in SERVICE!

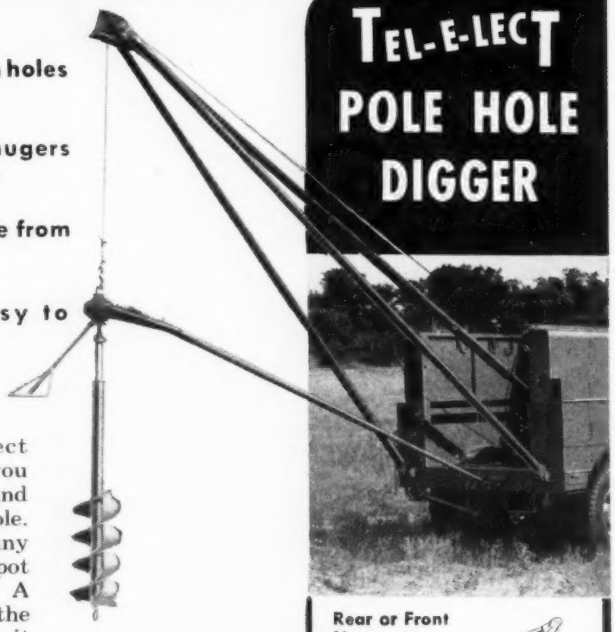
606 South Mint Street Charlotte 1, North Carolina
Telephone: 4-6417

Member of the North Carolina, South Carolina, and Virginia Telephone Associations, and U.S.I.T.A.

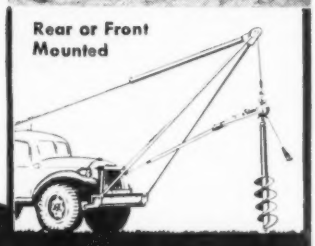
Operates ON ANY DERRICK TRUCK

- Adjustable for clean holes to 8 ft. deep
- Interchangeable augers 9" to 16" diameter
- Drills a straight hole from any truck position
- Easy to use—easy to transport

TEL-E-LECT POLE HOLE DIGGER



WITH the Tel-E-Lect Pole Hole Digger, you use the same truck and crew that sets the pole. You can drill a hole any place that you can spot the pole derrick. A single bolt attaches the digger to the truck; it works suspended from the derrick. Powered by the truck motor through a power take-off shaft, Tel-E-Lect is raised and lowered by the winch line. Fits the budget of even the smallest utility, and quickly pays for itself. *Ask for circular.*

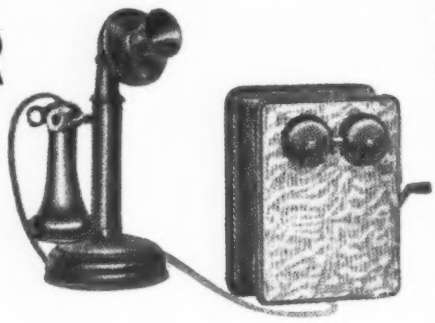


TEL-E-LECT PRODUCTS, Inc.

9607 MINNETONKA BOULEVARD, MINNEAPOLIS 16, MINNESOTA

EVER POPULAR "LIKE NEW"

★



Small magneto ringer boxes with Alnico generator, induction coil and ringer

1600 ohm	$13.20 each
2500 ohm	13.70 each

DESK STANDS

W. E. No. 1020	$6.00 each
Kellogg	5.00 each

Immediate shipment

Send your orders and ask about money saving drop wire prices.

TELEPHONE REPAIR & SUPPLY COMPANY

DANIEL H. McNULTY, *President and Manager*

1760 Lunt Avenue **Chicago 26, Illinois**

What Traffic Produces

(Continued from page 78)

(4) To be corrected when wrong but considerately and in private.

(5) To be asked for advice, particularly in matters affecting him.

(6) To be kept informed.

(7) To have an enthusiastic supervisor who inspires and encourages.

(8) To have a supervisor who wants him to succeed and is proud of him when he does.

(9) To feel some individual importance in the scheme of things.

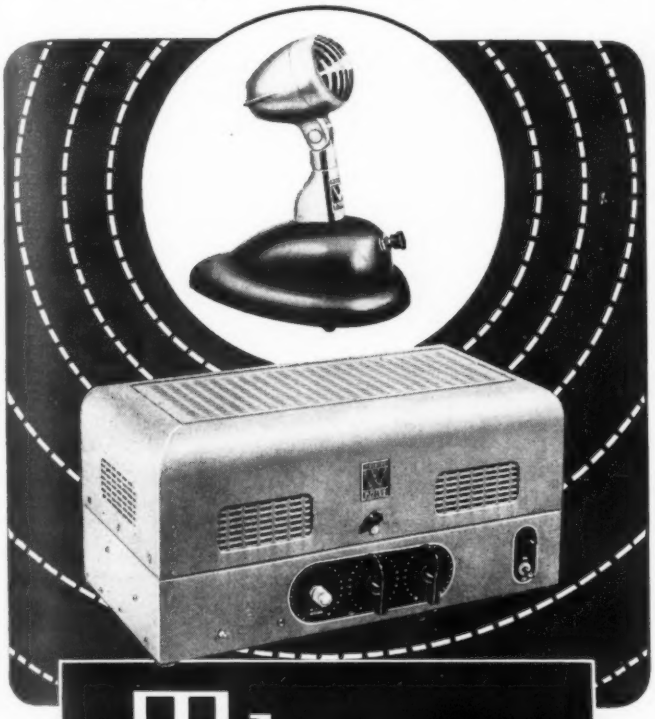
(10) To earn good wages under good working conditions.

Most of these desires are simple ones and we might be surprised if we priced them out to find that the least expensive is the most precious. That one is credit. Credit for a good job well done. Credit for the little things as well as the big ones. Many a supervisor has prided himself on observing so accurately that he could detect the slightest flaw in the way a job was done. How many of us take equal pride in noting and commenting favorably on a small task well done?

And here we have a real challenge. If credit and recognition are so important (and recently a human relations consultant reported, as a result of many surveys of employe opinion, that failure of management to give credit for good work and suggestions ranked first in order of importance) then how do we reflect justly earned credit upon the prime producer of our product—the operator? Good operating, we have said, is like good manners—best when so unobtrusive and imperceptible that no notice is attracted. Moreover, a skilled operator, particularly on a local call, moves so swiftly there is little chance for a favorable comment from the satisfied customer and the chance is only slightly better on a well-handled long distance call.

Anywhere else in our business the natural reaction of a customer to good service—his word of praise—can be readily delivered in person whether it be at the order desk or while the installer or repairman is doing his job in a neat and friendly way or a construction crew is working with an alert eye for protecting the public from hazards on the highways; wherever the public sees us doing a good job, there is an opportunity for a word of kindly comment. Rarely is this the case for the operator who is responsible for delivering our product hundreds of times every day.

Locate personnel when you want them!



WEBSTER ELECTRIC

telepage

REG. U.S. PAT. OFFICE

● "Telepage," as part of a receptionist's equipment, is a fast and efficient way of announcing visitors or locating personnel who are away from their desks or out of their offices. Calls do not have to be cleared through the board, but are handled by just flipping a key on a "Telepage" unit.

"Telepage" is available in a wide range of models to meet the needs of businesses, large or small. The tone is clear and free from hum or buzz. It is a quality product that gives excellent performance and outstanding service.

"Telepage" systems provide excellent supplementary service and are worthy of recommendation to many of your subscribers.

If you are not fully familiar with "Telepage" write Webster Electric Company, Racine, Wisconsin, for full information.

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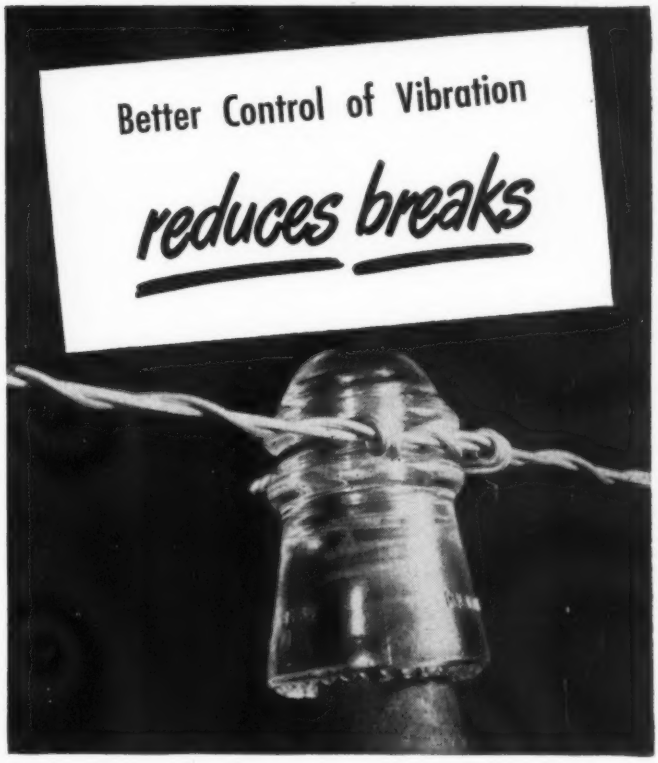
RACINE WISCONSIN

Established 1909

Export Dept. 13 E. 40th St., New York (16), N.Y. Cable Address "ARLAB" New York City

"Where Quality is a Responsibility and Fair Dealing an Obligation"



THIS illustration shows U·S·S Amertel 135 Telephone Wire protected against vibration by an American Armor Rod and Tie.

Extensive tests in the laboratory and in the field have shown that these armor rods quickly dampen vibration and assure much greater life for the conductors.

The greater strength of U·S·S Amertel 135 and Amertel 85 permits much longer spans than are possible with B.B. grade wire. The number of poles can be cut in half for Amertel 135 with large savings in construction costs.

Comparison of Strength and Span Length

U·S·S Amertel	Minimum breaking strength—No. 12 B.W.G.	Heavy Loading Span Length
135 grade	1213 lbs.	350 feet
85 grade	793 lbs.	225 feet
B.B. grade	476 lbs.	150 feet

In addition to high strength, Amertel-135 and 85 wires have increased transmission efficiency at voice frequency. Write for complete engineering data.

AMERICAN STEEL & WIRE COMPANY, CLEVELAND · CHICAGO · NEW YORK
COLUMBIA STEEL COMPANY, SAN FRANCISCO
PACIFIC COAST DISTRIBUTORS
TENNESSEE COAL, IRON & RAILROAD COMPANY, BIRMINGHAM
SOUTHERN DISTRIBUTORS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

Look for this tag.
It is your assurance
of highest quality wire.

AMERTEL-135 and 85
TELEPHONE WIRE

USS

UNITED STATES STEEL

Jenkins Bros. also make Diamond Seal Friction and Rubber Tapes which meet ASTM and Federal Specifications.

Gold Seal Tape sticks to the job tighter, longer. It does not dry out, ravel, peel, or smear the hands under any conditions. High quality base cloth plus laboratory control give Gold Seal lasting "tack"—high dielectric strength. Next time ask for Gold Seal — in single rolls or handy 10-roll containers—each roll cellophane wrapped. Jenkins Bros., (Rubber Div.), 80 White St., New York 13, N. Y.

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FOR *all* TELEPHONE REQUIREMENTS

LONG LIFE

Neoprene Jacketed Drop and Bridle Wire

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Interior - Tree - Ground - Switchboard - Pothead - Cable Terminal - Instrument

Manufactured and Tested to Rigid Specifications

ALPHADUCT WIRE & CABLE CO.

Milltown, New Jersey **Telephone: Milltown 8-0030**

This is a challenge to management and, being conscious of it, we can meet it in several ways. First, by cultivating in ourselves and our associates an alertness to the good features of the operator's job, the extra courtesy, the personal touch, her resourcefulness in following up a call and by developing an unfailing habit of commenting favorably at a moment while the operator is on the line—it won't slow up your call in the least. Second, by developing in our central office management an atmosphere of approval and encouragement, a feeling of responsibility for saying some of the good things customers would like to say if they knew when and how to say them. After all, the expressed approval of one's immediate boss brings deeper satisfaction and greater inspiration than any other commendation. Third, by talking and thinking and living in the office, in our advertising, in our public utterances, and in our personal contacts with the operating forces, how proud we are of the splendid work they are doing and thus building the prestige and importance of the job.

And this brings us back to our starting point. Our primary product is the completed call and the operator is the moving force that produces the completed call. No place in the business is the individual more apt to become lost in the crowd, to feel that she is not an individual, that she does not belong, and to lose sight of her important place in the business. The fact that the telephone service of this country is a beacon light to the world in charting the course to rapid, efficient, and unfailing communications service, delivered with unexcelled courtesy is proof that we have measured up well to the challenge of our traffic responsibility of inspiring a multitude of people through all the years to work well and happily in getting the message through. It is our good fortune that our responsibility is never ending and that tomorrow looks to a still more challenging adventure than did yesterday.

The Chief Operator

(Continued from page 81)

should be kept in a clean, neat and orderly condition.

What a treat it is to enter an office and find everything in its place; the office in general, neat and orderly, and the voices of the operators controlled

and modulated. Such an office gives the impression that here instructions are followed and good service will be found. Clean, neat rooms are attractive, even though the room itself and the furnishings are most ordinary. The chief operator should see that the switchboard is free from everything except that which is required in an operator's work.

She should see that operator's wearing apparel and telephone sets are put in spaces provided for them. In most offices, janitor service is provided but the chief operator generally must see that the work is done satisfactorily and that every operator does her part in keeping the quarters neat and clean.

And all mixed together—giving and taking—pumping all the while—"*Service.*"

The chief operator is responsible for the quality of the service at all times given by herself and the operators under her charge. The most adequate and efficient equipment and the finest and most modern building are inanimate objects and must be supplemented by a *good human element* so essential to *good service*.

Back of every switchboard are wires, relays, cables and other complex and intricate equipment. Back of every headset is a far more complex and intricate mechanism—the operator. Generally she has been chosen for this important enterprise of serving her community because:

She has INTELLIGENCE
She has IMAGINATION
She has INTEREST

Properly combined these qualifications equal *Service*—the keynote of the telephone business. Which means that at all times an operator is eager to give the best possible service to the public and friendly cooperation to her fellow workers and her supervisors. An operator should at all times have at heart the interest of her company, which after all is her interest for our companies are made up of all of us.

At some time or another most of us have been in an operating room where no connections were up on the switchboard, no calls waiting to be answered; perhaps with dial equipment, we have stood in the midst of the switchroom where the same condition existed, and at times like this have we thought or felt what our business would be without the "human element"?

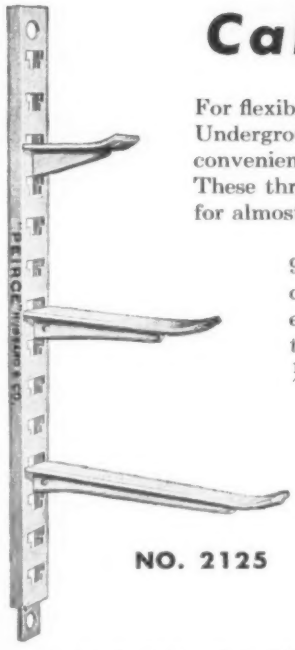
Let us not forget that good service stems from good human relationships. That without the mental equipment—the operating force—the finest switchboard equipment would be useless.

Ours is a business of Service. The Chief Operator is the Heart of Our Business.

JOHN LINEMAN OFFERS..

PEIRCE

Underground Cable Racks



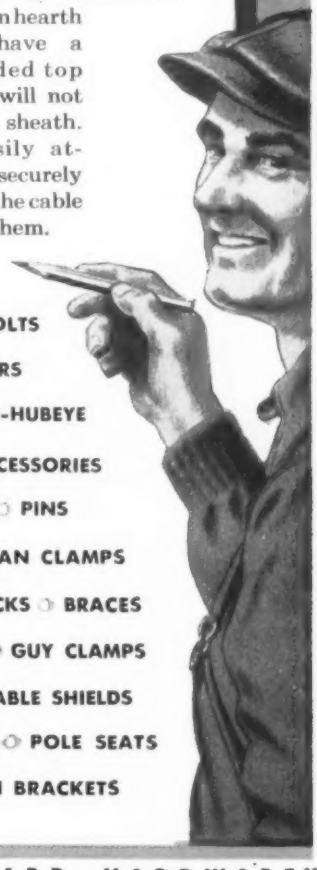
NO. 2125

For flexibility and ease of installation, Peirce Underground Cable Racks are made in three convenient lengths: 15, 24, and 30 inches. These three basic sections may be combined for almost any desired length.

Sections are made from 1½ by 9/16 by 3/16-inch open hearth steel channel and will support the heaviest cables. Racks are fastened to the manhole walls by means of a ½ by 4-inch Peirce Expansion Bolt.

Hooks adaptable for insulators and cut from open hearth "T" sections, have a smoothly rounded top surface which will not injure the cable sheath. Hooks are easily attached and lock securely when weight of the cable is placed upon them.

A. T. & T. Co. Standard

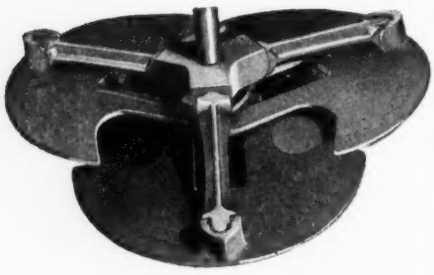


ALSO— HUBEYE NUTS ○ HUBEYE BOLTS
ANCHORS, PLATE AND SCREW ○ MANHOLE LADDERS
BRACKETS, POLE, CORNER AND HOUSE ○ EYE BOLTS-HUBEYE
CARRIAGE BOLTS ○ CROSS ARM BOLTS ○ GUYING ACCESSORIES
CABLE SUSPENSION HARDWARE ○ POLE BALCONIES ○ PINS
STORM GUY ATTACHMENTS ○ SIDE-WALK GUYS ○ SPAN CLAMPS
LAG SCREWS ○ MESSENGER DEAD ENDS ○ CABLE RACKS ○ BRACES
DRIVE HOOKS ○ EXTENSION ARMS ○ POLE STRUTS ○ GUY CLAMPS
POLE STEPS ○ STUBBING BANDS ○ STRAIN PLATES ○ CABLE SHIELDS
GUY PROTECTORS ○ GUY HOOKS ○ MACHINE BOLTS ○ POLE SEATS
GRADE CLAMPS ○ GROUND RODS ○ TRANSPOSITION BRACKETS

"HANG THE LOAD ON HUBBARD HARDWARE"

HUBBARD AND COMPANY
ESTABLISHED 1843
PITTSBURGH CHICAGO
OAKLAND, CALIFORNIA

EXTRA Holding Power
QUICKLY Installed
TOUGH For long life



EVERSTICK ANCHORS

For new construction and maintenance — Everstick Anchors speed up work and provide dependable anchorage on all types of jobs. Made of resiliant, rust resistant malleable iron. The toughest anchors made. Write for bulletin.

EVERSTICK ANCHOR CO.
FAIRFIELD, IOWA

THE MAGIC CABLE STRIPPER

SAFE
CONVENIENT
LIGHT WEIGHT
STURDY

STRIPS CABLE
PLASTIC COVERED
RUBBER COVERED
LEAD COVERED
FABRIC COVERED, ETC.

YOU CAN NOW GET SAFER AND FASTER CABLE STRIPPING—AND A BIGGER MARGIN OF PROFIT ON YOUR WORK—WITH THE NEW **TACA** MAGIC CABLE STRIPPERS AND PARALLEL WIRE SLITTERS ON THE JOB.

COMPARE THE MANY ADVANTAGES YOU GET ONLY IN A **TACA**. THERE ARE SEVERAL DIFFERENT MODELS FROM WHICH TO CHOOSE.

YOU'LL FIND A **TACA** STRIPPER TO FIT YOUR EXACT STRIPPING REQUIREMENTS. THE **TACA** MAGIC CABLE STRIPPERS ARE DESIGNED AND ENGINEERED FOR LONG LIFE AND TROUBLE-FREE OPERATION. NO OBLIGATION FOR A DEMONSTRATION.

WRITE NOW
TACA COMPANY
MANUFACTURERS OF
The Magic Cable Stripper
1623 Compton Avenue
Los Angeles 21, California

Traffic Adds to Bottom Line

(Continued from page 84)

of companies using this method have reported that their supervision has been improved and that their service assistants are showing an increased interest in their work. In any event, the cost of the booklets is small indeed in return for any improved supervision and with it better service.

Another all important factor in keeping traffic costs in hand is good peg counts, both regular and supplementary. As a large part of the company dollar goes into traffic salaries it behooves all of us to maintain good peg count data on which to draw operators working schedules. It also is necessary that reasonably high loads be maintained at all times as poor service can result from over-forces as well as from lack of sufficient operators to handle traffic loads.

I would like to wind up these notes with a very brief discussion of a couple of items which could be borne in mind when engineering your new toll switchboards — things that will help your traffic people give faster service and carry better loads. We have found that key pulsing, or key senders as some call them, can be a big aid in speeding up toll service where a volume of dialing (inward or outward) is in prospect. As additional offices are converted to dial automatic operation, more unattended dial offices placed in service, and as the nationwide dialing plan unfolds, increased dialing by almost every office is in the offing. According to our studies, senders save approximately 3¼ seconds over a regular dial on a five-digit number. On inward, it has been found that an operator with two senders can handle almost twice as many calls as an operator with a regular dial.

A recently developed sender arrangement permits the associating of one sender with each outward position and two senders with each inward position, with a spare sender (s) which may be jacked in anywhere. With this arrangement a sender is almost always instantly available to the operator. Senders permit dial impulses to be fed through the dial equipment at specified speeds and eliminate operators forcing or flipping dials. Wrong numbers are appreciably lessened with sender operation. In our opinion senders have definitely proved well worth their cost.

We have found that a new cord auxiliary position which could be used for information, repair service, rate and route, and for other auxiliary uses, can also be used for toll recording and as "KX" positions. "KX" positions are temporary outward positions when used in tandem with a regular toll switchboard position through cord arrangement. Such auxiliary positions using the relay equipment of the regular switchboard position can be secured for less than $400 and quickly installed.

Preparing Accounting Exhibits

(Continued from page 92)

additional provision for uncollectible accounts, increase in various taxes that are computed on the company's revenue, together with adjustments that may be required in order to properly allow for extraordinary expenses in connection with the rate case. The result of applying the above mentioned adjustments produces an adjusted income statement for the most recent 12 months' operation of the company and giving effect to the proposed increase in rates.

(5) *Rate of Return.* By dividing the adjusted net income thus shown by the rate base of the company as determined from the exhibit of plant valuation, it is possible to determine what the rate of return would be if the new rates are to be granted.

May I, in closing, urge all companies, both large and small, to reexamine their financial structure and rate schedules. There is no phase of the telephone business that at the present time can be of greater importance to the company than the carrying out of the necessary refinancing and the securing of adequate rates for its service. We have an obligation to continue to furnish telephone service in the community in which we operate. The public is interested in having its telephone company in such sound financial condition that we can continue to do our job well.

V V

Mrs. F. B. McHenry Dies

As this issue went to press, we learned of the sudden death of Mrs. Foster B. McHenry, vice president and secretary of the Capital City Telephone Co., Jefferson City, Mo., on Oct. 18 in a Jefferson City hospital.